

STATEMENT OF BASIS (AI No. 27823)

for draft Louisiana Pollutant Discharge Elimination System permit No. LA0050695 to discharge to waters of the State of Louisiana.

THE APPLICANT IS: Air Liquide Large Industries U.S. LP
Plaquemine Facility
2700 Post Oak Blvd., Suite 1800
Houston, TX 77056

ISSUING OFFICE: Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313

PREPARED BY: Jenniffer Sheppard
Water & Waste Permits Division
Telephone:(225)219-3135
jenniffer.sheppard@la.gov

DATE PREPARED: December 14, 2005

1. PERMIT STATUS

A. Reason For Permit Action: Proposed reissuance an existing Louisiana Pollutant Discharge Elimination System (LPDES) permit for a five year term following regulations promulgated at LAC 33:IX.2711/40 CFR 122.46*.

* In order to ease the transition from NPDES to LPDES permits, dual regulatory references are provided where applicable. The LAC references are the legal references while the 40 CFR references are presented for informational purposes only. In most cases, LAC language is based on and is identical to the 40 CFR language. 40 CFR Parts 401-402, and 404-471 have been adopted by reference at LAC 33:IX.4903 and will not have dual references. In addition, state standards (LAC Chapter 11) will not have dual references.

LAC 33:IX Citations: Unless otherwise stated, citations to LAC 33:IX refer to promulgated regulations listed at Louisiana Administrative Code, Title 33, Part IX.

40 CFR Citations: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations in accordance with the dates specified at LAC 33:IX.4901, 4903, and 2301.F.

B. NPDES permit - NPDES permit effective date: N/A
NPDES permit expiration date: N/A
EPA has not retained enforcement authority.

C. LPDES permit - LPDES permit effective date: April 1, 1998
LPDES permit expiration date: March 31, 2003

D. Date Application Received: January 13, 2003. Additional information received on November 7 and 17, 2005, and January 27, 2006.

2. FACILITY INFORMATION

A. FACILITY TYPE/ACTIVITY - ambient air separation plant

According to the application, Air Liquide Large Industries U.S. LP, Plaquemine Facility, is an ambient air separation plant that manufactures oxygen, nitrogen, and argon.

B. FEE RATE

1. Fee Rating Facility Type: minor
2. Complexity Type: II
3. Wastewater Type: III
4. SIC code: 2813

C. Continuous Facility Flow

Max 30 Day Continuous Flow - 0.65 MGD (updated by November 7, 2005 letter)

D. LOCATION - 57805 Evergreen Road in Plaquemine, Iberville Parish Latitude 30°14'32", Longitude 91°11'47"

E. Technology Basis - (40 CFR Chapter 1, Subchapter n/Parts 401-402, and 404-471 have been adopted by reference at LAC 33:IX.4903.)

Guideline

Inorganic Chemicals
Manufacturing Point Source Category

Reference

40 CFR 415
(Subpart AW - Oxygen & Nitrogen Production)

The provisions of this Subpart are applicable to discharges resulting from the production of oxygen and nitrogen by air liquidification. Currently, the amount of oxygen produced is 2.8 million pounds per day and the amount of nitrogen produced is 6.1 million pounds per day.

Other sources of technology based limits:

LDEQ Stormwater Guidance, letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6).

LPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities, LAR100000

LPDES Light Commercial General Permit, LAG480000

Louisiana Water Quality Management Plan for Sanitary Dischargers.

LDEQ Sanitary General Permits

Best Professional Judgement

3. OUTFALL INFORMATION

Outfall 001

Discharge Type: the discharge of process and non-process area stormwater and previously monitored effluent from Internal Outfall 101 consisting of cooling tower blowdown and treated wastewaters consisting of condensate, floor drains, washdown water, external truck wash water, and previously monitored effluent from Internal Outfall 301 consisting of sanitary wastewaters.

Treatment: None

Location: at the point of discharge from the final effluent pumps prior to combining with other waters (Latitude 30°14'26", Longitude 91°11'52").

Flow: Continuous, (Max 30-Day) 0.5966 MGD

Discharge Route: Bayou LaButte via local drainage

Basin & Segment: Terrebonne Basin, Subsegment 120201

Internal Outfall 101

Discharge Type: the discharge of cooling tower blowdown, and treated wastewaters consisting of condensate, floor drains, washdown wastewater, external truck washwater, and previously monitored effluent from Internal Outfall 301 consisting of treated sanitary wastewater.

Treatment: treatment of condensate, floor drains, washdown water, and external truck wash water consists of an oil/water separator. Cooling tower blowdown is not treated.

Location: at the point of discharge from the wastewater sump prior to combining with the waters of Final Outfall 001 at Latitude 30°14'26", Longitude 91°11'52".

Flow: Continuous - 0.5 MGD

Discharge Route: Final Outfall 001, thence to Bayou LaButte via local drainage

Basin & Segment: Terrebonne Basin, Subsegment 120201

Internal Outfall 301

Discharge Type: the discharge of treated sanitary wastewater.

Treatment: treatment of sanitary wastewater consists of an activated sludge package treatment unit

Location: at the point of discharge from the treatment facility prior to combining with the waters of Final Outfall 001 at Latitude 30°14'26", Longitude 91°11'52".

Flow: Continuous - 1,500 GPD

Discharge Route: Final Outfall 001, thence to Bayou LaButte via local drainage

Basin & Segment: Terrebonne Basin, Subsegment 120201

4. RECEIVING WATERS

STREAM - Bayou LaButte

- a. TSS (15%), mg/L: 12.20
- b. Average Hardness, mg/L CaCO_3 : 348.00
- c. Critical Flow, cfs: 0.1
- d. Mixing Zone Fraction: 1
- e. Harmonic Mean Flow, cfs: 3.21
- f. River Basin: Terrebonne, Segment No. 120201
- g. Designated Uses:
The designated uses are primary contact recreation, secondary contact recreation, and fish and wildlife propagation.

Information based on the following: Water Quality Management Plan, Volume 5A, 1994; LAC 33:IX Chapter 11;/Recommendation(s) from the Engineering Section. Hardness and 15% TSS data come from a random sampling site on Bayou LaButte near the city of Plaquemine at the bridge on State Highway 1, 4.3 miles south of Plaquemine. This information was presented in a Memorandum from Brian Baker to Jenniffer Sheppard dated September 8, 2005.

5. PROPOSED CHANGES FROM CURRENT LPDES PERMIT

- a. Outfall 001 - Water quality limits were place on Final Outfall 001 for Total Dissolved Solids based lab analyses from ten month of TDS data performed by Air Liquide Large Industries U.S. LP (See Appendix B) and a water quality screen (See Appendix A). In accordance with LAC 33:IX1109.D.1., a three (3) year compliance schedule has been included to allow Air Liquide time to come into compliance with water quality standards. This parameter shall be sampled once (1) per quarter by grab sample.
- b. Internal Outfall 101 - Mass limitations for Oil and Grease have decreased due to a decrease in oxygen and nitrogen production.

6. EXISTING EFFLUENT LIMITS

Outfall 001 - stormwater and previously monitored sanitary wastewater (301) and process wastewaters (101).

Parameter	Monthly Average	Daily Maximum	Frequency	Sample type
Flow (MGD)	Report	Report	1/month	Measure
TOC	---	50 mg/L	1/month	Grab
Oil & Grease	---	15 mg/L	1/month	Grab
TDS	---	Report	1/3 months	Grab
pH	---	6.0-9.0 s.u.	1/month	Grab

Outfall 101 - process wastewaters and previously monitored sanitary wastewater (301).

Parameter	Monthly Average	Daily Maximum	Frequency	Sample type
Flow (MGD)	Report	Report	1/month	Estimate
TOC	---	50 mg/L	1/month	Grab
Oil & Grease	---	15 mg/L	1/month	Grab
Oil & Grease	22.5 lbs/day	45 lbs/day	1/month	Grab
Additives	Report	Report	1/month	Inventory

Outfall 301 - the discharge of treated sanitary wastewater.

Parameter	Monthly Average	Daily Maximum	Frequency	Sample type
Flow (MGD)	Report	Report	1/ 6 months	Estimate
BOD ₅	---	45 mg/L	1/ 6 months	Grab
TSS	---	45 mg/L	1/ 6 months	Grab
Fecal Coliform colonies/100 ml	---	400	1/ 6 months	Grab

7. PROPOSED EFFLUENT LIMITS

The following section sets forth the principal facts and the significant factual, legal, methodological, and policy questions considered in preparing the draft permit. Also set forth are any calculations or other explanations of the derivation of specific effluent limitations and conditions, including a citation to the applicable effluent limitation guideline or performance standard provisions as required under LAC 33:IX.2707/40 CFR Part 122.44 and reasons why they are applicable or an explanation of how the alternate effluent limitations were developed.

A. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at LAC 33:IX.2707.L.2.b/40 CFR Part 122.44(l)(2)(ii), the draft permit limits are based on either technology-based effluent limits pursuant to LAC 33:IX.2707.A/40 CFR Part 122.44(a) or on State water quality standards and requirements pursuant to LAC 33:IX.2707.D/40 CFR Part 122.44(d), whichever are more stringent.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations promulgated at LAC 33:IX.2707.A/40 CFR Part 122.44(a) require technology-based effluent limitations to be placed in LPDES permits based on effluent limitations guidelines where applicable, on BPJ (best professional judgement) in the absence of guidelines, or on a combination of the two. Air Liquide Large Industries U.S. LP, Plaquemine Facility is subject to Best Practicable Control Technology Currently Available (BPT) and Best Available Technology Economically Achievable (BAT) effluent limitation guidelines listed below:

<u>Guideline</u>	<u>Reference</u>
Inorganic Chemicals	40 CFR 415
Manufacturing Point Source Category	(Subpart AW - Oxygen and Nitrogen Production)

The provisions of this Subpart are applicable to discharges resulting from the production of oxygen and nitrogen by air liquidification. Currently, the amount of oxygen produced is 2.8 million pounds per day and the amount of nitrogen produced is 6.1 million pounds per day.

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity [LAC 33:IX.2715/40 CFR 122.48 (b)] and to assure compliance with permit limitations [LAC 33:IX.2707.I./40 CFR 122.44(I)].

The following section explains the rationale for the permit limitations and monitoring frequencies stated in the draft permit.

Outfall 001 - the discharge of process and non-process area stormwater and previously monitored effluent from Internal Outfall 101 consisting of cooling tower blowdown and treated wastewaters consisting of condensate, floor drains, washdown water, external truck wash water, and previously monitored effluent from Internal Outfall 301 consisting of sanitary wastewaters.

Parameter	Monthly Average	Daily Maximum	Frequency	Sample type	Regulatory Basis
Flow (MGD)	Report	Report	1/month	Measure	LAC 33:IX.2707.I.1.b
TOC	---	50 mg/L	1/month	Grab	BPJ; MSGP; current LPDES permit
Oil & Grease	---	15 mg/L	1/month	Grab	BPJ; MSGP; current LPDES permit
TDS*	Report mg/L	Report mg/L	1/quarter	Grab	BPJ; current guidance; current LPDES permit
TDS**	873.095 mg/L	2072.767 mg/L	1/quarter	Grab	BPJ; lab analyses; current LPDES permit; water quality standards
pH	---	6.0-9.0 s.u.	1/month	Grab	BPJ; MSGP; current LPDES permit

* Beginning on the effective date of the permit and lasting approximately three years into the permit.

** Beginning approximately three years from the effective date and lasting until permit expiration.

Treatment: None

Flow

The reporting monthly average and daily maximum flow is retained from the current LPDES permit and is based on LAC 33:IX.2707.I.1.b. The measurement frequency of once per month and the sample type of measure is also retained from the current permit.

Total Organic Carbon (TOC)

A daily maximum permit limitation for total organic carbon at 50 mg/L is retained from the current LPDES permit due to the presence of stormwater in the discharge and is based on the LDEQ Stormwater Guidance letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and the LPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities, LAR050000, effective on May 1, 2001. The measurement frequency of once per month and the sample type of grab is also retained from the current LPDES permit.

Oil and Grease

A daily maximum permit limitation for oil and grease at 15 mg/L is retained from the current LPDES permit due to the presence of stormwater in the discharge and is based on the LDEQ Stormwater Guidance letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and the LPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities, LAR050000, effective on May 1, 2001. The measurement frequency of once per month and the sample type of grab is also retained from the current LPDES permit.

Total Dissolved Solids (TDS)

Monthly average and daily maximum permit reporting requirements for TDS have been established for the first three years of the permit. The permit also proposes to establish a monthly average limitation of 873.095 mg/L and a daily maximum limitation of 2072.767 mg/L. These values were calculated using data provided by Air Liquide Large Industries U.S. resulting from a ten month TDS study. In accordance with LAC 33:IX1109.D.1., a three (3) year compliance schedule has been included to allow Air Liquide time to come into compliance with water quality standards. This parameter shall be sampled once (1) per quarter by grab sample.

pH

A minimum limit for pH at 6.0 standard units and a maximum limit for pH at 9.0 standard units is retained from the current LPDES permit. The limitation is established to ensure that the discharge does not cause an instream exceedance of the numeric criteria for pH as established by LAC 33:IX.1113.C.1. The pH limitation is also established based on the LDEQ Stormwater Guidance letter dated 6/17/87, from J. Dale Givens (LDEQ) to Myron Knudson (EPA Region 6) and the LPDES Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activities, LAR050000, effective on May 1, 2001. The measurement frequency of once per month and the sample type of grab is also retained from the current LPDES permit.

Site-Specific Consideration(s)

In accordance with LAC 33:IX1109.D.1., the Department of Environmental Quality has granted Air Liquide Large Industries U.S. LP, Plaquemine Facility three years to come into compliance with current water quality standards for the parameter total dissolved solids (TDS).

The following **Interim Schedule** starts on the effective date of the permit and expires approximately three years from the effective date:

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM	FREQUENCY	SAMPLE TYPE
Total Dissolved Solids	Report mg/L	Report mg/L	1/quarter	Grab

The following **Final Schedule** starts three years after the effective date of the permit and expires upon expiration of the permit:

PARAMETER	MONTHLY AVERAGE	DAILY MAXIMUM	FREQUENCY	SAMPLE TYPE
Total Dissolved Solids	873.095 mg/L	2072.767 mg/L	1/quarter	Grab

Internal Outfall 101 - the discharge of process and non-process area stormwater and previously monitored effluent from Internal Outfall 101 consisting of cooling tower blowdown and treated wastewaters consisting of condensate, floor drains, washdown water, external truck wash water, and previously monitored effluent from Internal Outfall 301 consisting of sanitary wastewaters

Parameter	Monthly Average	Daily Maximum	Frequency	Sample type	Regulatory Basis
Flow (MGD)	Report	Report	1/month	Measure	LAC 33:IX.2707.I.1.b
TOC	---	50 mg/L	1/month	Grab	BPJ; current LPDES permit
Oil & Grease	8.9 lbs/day	17.8 lbs/day	1/month	Grab	BPJ; current LPDES permit; 40 CFR 415.492
Oil & Grease	---	15 mg/L	1/month	Grab	BPJ; current LPDES permit
Additives*	Report	Report	1/month	Inventory	BPJ; current LPDES permit

- * A list of the type and quantity of additives used in the cooling towers shall be submitted as an attachment to the Discharge Monitoring Report Quarterly. Material Safety Data Sheets for each additive used shall be submitted once to this Office and the Capital Regional Office at the time of initial use of the additive.

Treatment: treatment of condensate, floor drains, washdown water, and external truck wash water consists of an oil/water separator. Cooling tower blowdown is not treated.

Flow

The reporting monthly average and daily maximum flow is retained from the current LPDES permit and is based on LAC 33:IX.2707.I.1.b. The measurement frequency of once per month, when discharging, and the sample type of estimate is also retained from the current permit.

Total Organic Carbon (TOC)

A daily maximum permit limitation for total organic carbon at 50 mg/L is retained from the current LPDES permit. The measurement frequency of once per month, when discharging, and the sample type of grab is also retained from the current permit.

Oil and Grease

A daily maximum permit limitation in concentration for oil and grease at 15 mg/L is retained from the current LPDES permit. Since this LPDES permit was issued, LDEQ has issued an LPDES General Permit, LAG480000, that covers discharges from light commercial facilities. This general permit includes the authorization to discharge exterior vehicle wash water and washdown wastewater. The technology used to establish limitations in that general permit can be employed to establish technology limitations in this draft LPDES permit. Therefore, the transfer of limitations established in the LAG480000 is appropriate. The daily maximum permit limitation for oil and grease at 15 mg/L is also established in LAG480000 for the discharge of exterior vehicle wash water and washdown water. The measurement frequency of once per month, when discharging, and the sample type of grab is retained from the current permit.

Monthly average and daily maximum limitations for the quantity of oil and grease discharged are based on 40 CFR 415.492, the Oxygen and Nitrogen Production Subcategory of the Inorganic Chemicals Manufacturing Point Source Category. The current LPDES permit limits are based on a previous production of 2,250 tons (4.5 million pounds) per day of oxygen and 9,000 tons (18 million pounds) per day of nitrogen; previous total production of 22.5 million pounds. Currently, the amount of oxygen produced is 2.8 million pounds per day of oxygen and 6.1 million pounds per day of nitrogen. Total production is 8.9 million pounds per day. The guidelines require multiplication of a factor by pounds per 1000 pounds of product. Due to this decrease in production, the technology based limitations in accordance with 40 CFR 415.492 are as follows:

Monthly Average:

8,900 pounds per 1000 pounds \times 0.0010 = 8.9 pounds per day of Oil and Grease

Daily Maximum:

8,900 pounds per 1000 pounds \times 0.0020 = 17.8 pounds per day of Oil and Grease

The measurement frequency of once per month, when discharging, and the sample type of grab is retained from the current permit.

Additives

A reporting requirement for both monthly average and daily maximum amount of additives is retained from the current LPDES permit. The measurement frequency of once per month and sample type of inventory is also retained. A list of the type and quantity of additives used in the cooling towers shall be submitted as an attachment to the Discharge Monitoring Report Quarterly. Material Safety Data Sheets for each additive used shall be submitted once to this Office and the Capital Regional Office at the time of initial use of the additive.

Site-Specific Consideration(s)

NONE

Internal Outfall 301 - the discharge of treated sanitary wastewater.

Parameter	Monthly Average	Weekly Average	Frequency	Sample type	Regulatory Basis
Flow (MGD)	Report	Report	1/6 months	Estimate	LAC 33:IX.2707.I.1.b
BOD ₅	---	45 mg/L	1/6 months	Grab	BPJ; sanitary general class I; current LPDES permit
TSS	---	45 mg/L	1/6 months	Grab	BPJ; sanitary general class I; current LPDES permit
Fecal Coliform colonies/100 ml	---	400	1/6 months	Grab	BPJ; sanitary general class I; current LPDES permit

Treatment: treatment of sanitary wastewater consists of an activated sludge package treatment unit.

Flow

The reporting monthly average and weekly average flow is retained from the current LPDES permit and is based on LAC 33:IX.2707.I.1.b. The measurement frequency of once per six months and the sample type of estimate is also retained from the current permit. This frequency and sample type is in accordance with the LPDES Sanitary Class I General Permit.

Biological Oxygen Demand (BOD₅)

The current permit established a weekly average permit limitation for BOD₅ at 45 mg/L. This limitation is retained. The limitation is based on LAC 33:IX.711.C and D and by best professional judgement utilizing the sanitary general permits issued by this Office for the discharge of sanitary wastewater. The measurement frequency of once per six months and the sample type of grab is also retained from the current permit.

Total Suspended Solids (TSS)

The current permit established a weekly average permit limitation for TSS at 45 mg/L. This limitation is retained. The limitation is based on LAC 33:IX.711.C and D and by best professional judgement utilizing the sanitary general permits issued by this Office for the discharge of sanitary wastewater. The measurement frequency of once per six months and the sample type of grab is also retained from the current permit.

Fecal Coliform

The current permit established a weekly average permit limitation for fecal coliform at 400 colonies per 100 ml. This limitation is retained. The limitation is based on LAC 33:IX.711.C and D and by best professional judgement utilizing the sanitary general permits issued by this Office for the discharge of sanitary wastewater. The measurement frequency of once per six months and the sample type of grab is also retained from the current permit.

Site-Specific Consideration(s)

NONE

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS

In accordance with LAC 33:IX.2707.D.1/40 CFR § 122.44(d)(1), the existing (or potential) discharge (s) was evaluated in accordance with the Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001, to determine whether pollutants would be discharged "at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard." Calculations, results, and documentation are given in Appendix A.

The following pollutants received water quality based effluent limits:

Total Dissolved Solids

Minimum quantification levels (MQL's) for state water quality numerical standards-based effluent limitations are set at the values listed in the Permitting Guidance Document for Implementing

Louisiana Surface Water Quality Standards, LDEQ, September 27, 2001. They are also listed in Part II of the permit.

TMDL Waterbodies

The discharges from outfalls 001, 101, and 301 including cooling tower blowdown, process and non-process area stormwater, and treated wastewater consisting of condensate, floor drains, washdown water, external truck wash water, and sanitary wastewater are to Bayou LaButte, Segment No. 120201. Bayou LaButte is listed on the 303(d) report as being impaired with organic enrichment/low DO, pathogen indicators, nitrate/nitrites, sulfates, and phosphorus. A TMDL is scheduled to be completed by 2007-2008.

Organic Enrichment/Low DO

To address the potential for further impairment of organic enrichment/low DO, the biological oxygen demand limitations in the permit shall remain equivalent to those established in the current LPDES permit to ensure no further impairment to this stream.

Pathogen Indicators

To address the potential for further impairment of pathogen indicators, the fecal coliform limitations in the permit shall remain equivalent to those established in the current LPDES permit to ensure no further impairment to this stream.

Nitrate/Nitrite, Sulfates, and Phosphorus

The discharges from this facility are not reasonably expected to cause further nitrate/nitrite, sulfates, or phosphorus impairments, therefore, no additional requirements were added to this permit.

A reopener clause will be established in the permit to include more stringent limits based on final loading allocations upon completion of an approved TMDL.

8. COMPLIANCE HISTORY/COMMENTS

A compliance history/dmr review was done to cover the period of January 2002 through December 2005. There are no open enforcement actions on file for this facility.

A. Inspections

August 27, 2002 - a facility inspection indicated that all areas were satisfactory.

December 16, 2004 - a facility inspection found a few TSS exceedances in January 2004. It was also noted that Oil & Grease loadings were not included on DMRs. The company took steps to correct DMRs for the missing Oil & Grease loading. On March 10, 2005, LDEQ issued Air Liquide a Deficiency Clear Letter stating that the areas of concern had been adequately addressed.

B. DMR Review/Excursions

<u>Date</u>	<u>Parameter</u>	<u>Outfall</u>	<u>Reported Value</u>	<u>Permit Limits</u>
01/01/02	Fecal Coliform	301	480 col/100 ml wkly avg	400 col/100 ml wkly avg
10/01/02	Oil & Grease	101	54.223 lbs/day dly max	45 lbs/day dly max
01/01/04	TSS	301	66 mg/L wkly avg	45 mg/L wkly avg
05/01/05	TOC	101	No Sample taken	
05/01/05	Oil&Grease	101	No Sample taken	

9. ENDANGERED SPECIES

The receiving waterbody, Subsegment 120201 of the Terrebonne Basin is not listed in Section II.2 of the Implementation Strategy as requiring consultation with the U.S. Fish and Wildlife Service (FWS). This strategy was submitted with a letter dated October 21, 2005 from Watson (FWS) to Gautreaux (LDEQ). Therefore, in accordance with the Memorandum of Understanding between the LDEQ and the FWS, no further informal (Section 7, Endangered Species Act) consultation is required. It was determined that the issuance of the LPDES permit is not likely to have an adverse effect on any endangered or candidate species or the critical habitat. The effluent limitations established in the permit ensure protection of aquatic life and maintenance of the receiving water as aquatic habitat.

10. HISTORIC SITES

The discharge is from an existing facility location, which does not include an expansion on undisturbed soils. Therefore, there should be no potential effect to sites or properties on or eligible for listing on the National Register of Historic Places, and in accordance with the "Memorandum of Understanding for the Protection of Historic Properties in Louisiana Regarding LPDES Permits" no consultation with the Louisiana State Historic Preservation Officer is required.

11. TENTATIVE DETERMINATION

On the basis of preliminary staff review, the Department of Environmental Quality has made a tentative determination to a permit for the discharge described in the application.

12. PUBLIC NOTICES

Upon publication of the public notice, a public comment period shall begin on the date of publication and last for at least 30 days thereafter. During this period, any interested persons may submit written comments on the draft permit and may request a public hearing to clarify issues involved in the permit decision at this Office's address on the first page of the statement of basis. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing.

Public notice published in:

Local newspaper of general circulation

Office of Environmental Services Public Notice Mailing List

13. STORM WATER POLLUTION PREVENTION PLAN (SWP3) REQUIREMENT

As per LAC 33:IX.2341.B.14.k, stormwater discharges from facilities classified as SIC Code 2813 are considered to be associated with industrial activities. Therefore, an SWP3 is included in the permit.

The SWP3 shall be prepared, implemented, and maintained within six (6) months of the effective date of the final permit. The plan should identify potential sources of storm water pollution and ensure the implementation of practices to prevent and reduce pollutants in storm water discharges associated with industrial activity at the facility (see narrative requirements for the AI).

APPENDIX A

Developer: Bruce Fielding Time: 02:59 PM

Software: Lotus 4.0

LA0050695, AI27823

Revision date: 02/14/05

Water Quality Screen for Air Liquide America Corp / Plaquemine Facility

Input variables:

Receiving Water Characteristics:

Dilution:

Toxicity Dilution Series:

Receiving Water Name= Bayou LaButte

ZID Fs = 0.1

Biomonitoring dilution: 0.909562

Critical flow (Qr) cfs= 0.1

MZ Fs = 1

Dilution Series Factor: 0.75

Harm. mean/avg tidal cfs= 3.21

Critical Qr (MGD)= 0.06463

Percent Effluent

Drinking Water=1 HHNPCR=2

Harm. Mean (MGD)= 2.074623

Dilution No. 1 90.956%

Marine, 1=y, 0=n

ZID Dilution = 0.990155

Dilution No. 2 68.2171%

Rec. Water Hardness= 348

MZ Dilution = 0.909562

Dilution No. 3 51.1628%

Rec. Water TSS= 12.2

HHnc Dilution= 0.909562

Dilution No. 4 38.3721%

Fisch/Specific=1,Stream=0

HHc Dilution= 0.238565

Dilution No. 5 28.7791%

Diffuser Ratio=

ZID Upstream = 0.009943

MZ Upstream = 0.099431

Partition Coefficients; Dissolved-->Total

Effluent Characteristics:

MZhhnc Upstream= 0.099431

Permittee= Air Liquide America Corp / Plaquemine Facility

METALS FW

Permit Number= LA0050695, AI27823

Total Arsenic 1.943101

Facility flow (Qef),MGD= 0.65

MZhhc Upstream= 3.191728

Total Cadmium 3.88957

ZID Hardness= ---

Chromium III 5.00299

Outfall Number = 001

MZ Hardness= ---

Chromium VI 1

Eff. data, 2=lbs/day

ZID TSS= ---

Total Copper 2.992906

MQL, 2=lbs/day 1

MZ TSS= ---

Total Lead 5.617746

Effluent Hardness= N/A

Multipliers:

Total Mercury 3.043185

Effluent TSS= N/A

WLAA --> LTAA 0.32

Total Nickel 2.436583

WQBL ind. 0=y, 1=n

WLAC --> LTAC 0.53

Total Zinc 3.64739

Acute/Chr. ratio 0=n, 1=y 0

LTA a,c-->WQBL avg 1.31

Aquatic Life, Dissolved

Aquatic,acute only1=y,0=n

LTA a,c-->WQBL max 3.11

Metal Criteria, ug/L

LTA h --> WQBL max 2.38

WQBL-limit/report 2.13

METALS ACUTE CHRONIC

Page Numbering/Labeling

WLA Fraction 1

Arsenic 339.8 150

Appendix Appendix A-1

WQBL Fraction 1

Cadmium 122.6582 2.587341

Page Numbers 1=y, 0=n 1

Conversions:

Chromium III 1523.767 494.2942

Input Page # 1=y, 0=n 1

ug/L-->lbs/day Qef0.005421

Chromium VI 15.712 10.582

ug/L-->lbs/day Qeo 0

Copper 59.66366 35.65484

ug/L-->lbs/day Qr 0.000834

Lead 243.3253 9.482037

lbs/day-->ug/L Qeo184.4678

Mercury 1.734 0.012

lbs/day-->ug/L Qef184.4678

Nickel 4064.969 451.4474

diss-->tot 1=y0=n 1

Zinc 329.2198 300.6276

Cu diss-->tot1=y0=n 1

Site Specific Multiplier Values:

cfs-->MGD 0.06463

CV = ---

Fischer/site specific dilutions:

N = ---

Receiving Stream:

F/specific ZID Dilution = ---

WLAA --> LTAA ---

Default Hardness= 25

WLAC --> LTAC ---

F/specific MZ Dilution = ---

Default TSS= 10

LTA a,c-->WQBL avg ---

F/specific HHnc Dilution= ---

99 Crit., 1=y, 0=n 1

LTA a,c-->WQBL max ---

F/specific HHc Dilution= ---

LTA h --> WQBL max ---

Air Liquide America Corp / Plaquemine Facility

LA0050695, AI27823

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)	(*11)
Toxic Parameters	CuEffluent Instream Conc. ug/L	Effluent /Tech (Avg) ug/L	Effluent /Tech (Max) ug/L	MQLEffluent 1=No 95% 0=95 % ug/L	95th % Non-Tech ug/L	estimate	Numerical Criteria Acute FW ug/L	Chronic FW ug/L	HHNDW ug/L	HH Carcinogen Indicator "C"
NONCONVENTIONAL										
Total Phenols (4AAP)		10		5	0	21.3	700	350	50	
3-Chlorophenol				10						
4-Chlorophenol				10			383	192		
2,3-Dichlorophenol				10						
2,5-Dichlorophenol				10						
2,6-Dichlorophenol				10						
3,4-Dichlorophenol				10						
2,4-Dichlorophenoc- acetic acid (2,4-D)				---						
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)				---						
METALS AND CYANIDE										
Total Arsenic		33		10	0	70.29	660.2659	291.4652		
Total Cadmium				1			477.0878	10.06364		
Chromium III		50		10	0	106.5	7623.39	2472.949		
Chromium VI				10			15.712	10.582		
Total Copper				10			178.5678	106.7116		
Total Lead				5			1366.94	53.26767		
Total Mercury				0.2			5.276882	0.036518		
Total Nickel				40			9904.634	1099.989		
Total Zinc		30		20	0	53.9	1200.793	1096.506		
Total Cyanide				20			45.9	5.2	12844	
DIOXIN										
2,3,7,8 TCDD; dioxin				1.0E-005					7.2E-007	C
VOLATILE COMPOUNDS										
Benzene				10			2249	1125	12.5	C
Bromoform				10			2930	1465	34.7	C
Bromodichloromethane				10					3.3	C
Carbon Tetrachloride				10			2730	1365	1.2	C
Chloroform				10			2890	1445	70	C
Dibromochloromethane				10					5.08	C
1,2-Dichloroethane				10			11800	5900	6.8	C
1,1-Dichloroethylene				10			1160	580	0.58	C
1,3-Dichloropropylene				10			606	303	162.79	
Ethylbenzene				10			3200	1600	8100	
Methyl Chloride				50			55000	27500		
Methylene Chloride				20			19300	9650	87	C
1,1,2,2-Tetrachloro- ethane				10			932	466	1.8	C

Air Liquide America Corp / Plaquemine Facility
LA0050695, AI27823

(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic	WLAa	WLAc	WLAh	LTAA	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need
Parameters	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A, C, HH	Avg	Max	Avg	Max	WQBL?
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
NONCONVENTIONAL												
Total Phenols (4AAP)	706.9602	384.8008	54.97154	226.2272	203.9444	54.97154	54.97154	54.97154	130.8323	0.298001	0.709242	no
3-Chlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
4-Chlorophenol	386.8082	211.0907	---	123.7786	111.8781	---	111.8781	146.5603	347.9408	0.794503	1.886187	no
2,3-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,5-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,6-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
3,4-Dichlorophenol	---	---	---	---	---	---	---	---	---	---	---	no
2,4-Dichlorophenoc-												
acetic acid (2,4-D)	---	---	---	---	---	---	---	---	---	---	---	no
2-(2,4,5-Trichlorophen-												
oxy) propionic acid	---	---	---	---	---	---	---	---	---	---	---	no
(2,4,5-TP, Silvex)	---	---	---	---	---	---	---	---	---	---	---	no
METALS AND CYANIDE												
Total Arsenic	666.8309	320.4458	---	213.3859	169.8363	---	169.8363	222.4855	528.1908	1.206094	2.863323	no
Total Cadmium	481.8315	11.06428	---	154.1861	5.864069	---	5.864069	7.68193	18.23725	0.041644	0.098864	no
Chromium III	7699.19	2718.836	---	2463.741	1440.983	---	1440.983	1887.688	4481.458	10.23316	24.29398	no
Chromium VI	15.86823	11.63418	---	5.077832	6.166113	---	5.077832	6.65196	15.79206	0.03606	0.085609	no
Total Copper	180.3433	117.322	---	57.70985	62.18068	---	57.70985	75.5999	179.4776	0.409827	0.972948	no
Total Lead	1380.531	58.56412	---	441.77	31.03898	---	31.03898	40.66107	96.53123	0.220424	0.523296	no
Total Mercury	5.329351	0.040149	---	1.705392	0.021279	---	0.021279	0.027876	0.066178	0.000151	0.000359	no
Total Nickel	10003.12	1209.362	---	3200.997	640.9618	---	640.9618	839.6599	1993.391	4.551797	10.80617	no
Total Zinc	1212.733	1205.533	---	388.0744	638.9323	---	388.0744	508.3775	1206.911	2.755914	6.542667	no
Total Cyanide	46.35639	5.71704	14121.09	14.83404	3.030031	14121.09	3.030031	3.969341	9.423397	0.021518	0.051084	no
DIOXIN												
2,3,7,8 TCDD; dioxin	---	---	0.000003	---	---	0.000003	0.000003	0.000003	0.000007	1.6E-008	3.9E-008	no
VOLATILE COMPOUNDS												
Benzene	2271.362	1236.86	52.3966	726.8358	655.5356	52.3966	52.3966	52.3966	124.7039	0.284042	0.67602	no
Bromoform	2959.133	1610.666	145.453	946.9226	853.653	145.453	145.453	145.453	346.178	0.7885	1.876631	no
Bromodichloromethane	---	---	13.8327	---	---	13.8327	13.8327	13.8327	32.92183	0.074987	0.178469	no
Carbon Tetrachloride	2757.145	1500.723	5.030073	882.2863	795.3832	5.030073	5.030073	5.030073	11.97157	0.027268	0.064898	no
Chloroform	2918.735	1588.677	293.4209	933.9954	841.9991	293.4209	293.4209	293.4209	698.3418	1.590635	3.785711	no
Dibromochloromethane	---	---	21.29398	---	---	21.29398	21.29398	21.29398	50.67966	0.115435	0.274734	no
1,2-Dichloroethane	11917.33	6486.642	28.50375	3813.545	3437.92	28.50375	28.50375	28.50375	67.83892	0.154519	0.367755	no
1,1-Dichloroethylene	1171.534	637.6698	2.431202	374.8909	337.965	2.431202	2.431202	2.431202	5.786261	0.01318	0.031367	no
1,3-Dichloropropylene	612.0255	333.1275	178.9763	195.8482	176.5576	178.9763	176.5576	231.2904	549.0941	1.253825	2.976639	no
Ethylbenzene	3231.818	1759.089	8905.389	1034.182	932.3173	8905.389	932.3173	1221.336	2899.507	6.620861	15.71823	no
Methyl Chloride	55546.87	30234.35	---	17775	16024.2	---	16024.2	20991.71	49835.27	113.796	270.157	no
Methylene Chloride	19491.9	10609.51	364.6803	6237.408	5623.039	364.6803	364.6803	364.6803	867.9391	1.976932	4.705098	no
1,1,2,2-Tetrachloro-												
ethane	941.2669	512.3347	7.54511	301.2054	271.5374	7.54511	7.54511	7.54511	17.95736	0.040902	0.097347	no

Air Liquide America Corp / Plaquemine Facility

LA0050695, A127823

(*1)	(*2)	(*3)	(*4)	(*5)	(*6)	(*7)	(*8)	(*9)	(*10)	(*11)
Toxic	CuEffluent		Effluent	MQLEffluent		95th %	Numerical Criteria			HH
Parameters	Instream	/Tech	/Tech	1-No	95%	estimate	Acute	Chronic	HHNDW	Carcinogen
	Conc.	(Avg)	(Max)	0=95 %	Non-Tech		FW	FW		Indicator
	ug/L	ug/L	ug/L	ug/L	ug/L		ug/L	ug/L	ug/L	"C"
VOLATILE COMPOUNDS (cont'd)										
Tetrachloroethylene				10			1290	645	2.5	C
Toluene				10			1270	635	46200	
1,1,1-Trichloroethane				10			5280	2640		
1,1,2-Trichloroethane				10			1800	900	6.9	C
Trichloroethylene				10			3900	1950	21	C
Vinyl Chloride				10					35.8	C
ACID COMPOUNDS										
2-Chlorophenol				10			258	129	126.4	
2,4-Dichlorophenol				10			202	101	232.6	
BASE NEUTRAL COMPOUNDS										
Benzidine				50			250	125	0.00017	C
Hexachlorobenzene				10					0.00025	C
Hexachlorobutadiene				10			5.1	1.02	0.11	C
PESTICIDES										
Aldrin				0.05			3		0.0004	C
Hexachlorocyclohexane (gamma BHC, Lindane)				0.05			5.3	0.21	0.2	C
Chlordane				0.2			2.4	0.0043	0.00019	C
4,4'-DDT				0.1			1.1	0.001	0.00019	C
4,4'-DDE				0.1			52.5	10.5	0.00019	C
4,4'-DDD				0.1			0.03	0.006	0.00027	C
Dieldrin				0.1			0.2374	0.0557	0.00005	C
Endosulfan				0.1			0.22	0.056	0.64	
Endrin				0.1			0.0864	0.0375	0.26	
Heptachlor				0.05			0.52	0.0038	0.00007	C
Toxaphene				5			0.73	0.0002	0.00024	C
Other Parameters:										
Fecal Col. (col/100ml)										
Chlorine							19	11		
Ammonia								4000		
Chlorides										
Sulfates										
TDS	904000	1239000			1			300000		

LA0050695, AI27823

(*1)	(*12)	(*13)	(*14)	(*15)	(*16)	(*17)	(*18)	(*19)	(*20)	(*21)	(*22)	(*23)
Toxic Parameters	WLAa	WLAc	WLAh	LTAA	LTAc	LTAh	Limiting	WQBL	WQBL	WQBL	WQBL	Need
	Acute	Chronic	HHNDW	Acute	Chronic	HHNDW	A, C, HH	Avg	Max	Avg	Max	WQBL?
								001	001	001	001	
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	lbs/day	lbs/day	
Tetrachloroethylene	1302.827	709.1328	10.47932	416.9045	375.8404	10.47932	10.47932	10.47932	24.94078	0.056808	0.135204	no
Toluene	1282.628	698.1385	50793.7	410.4409	370.0134	50793.7	370.0134	484.7176	1150.742	2.627654	6.238171	no
1,1,1-Trichloroethane	5332.499	2902.497	---	1706.4	1538.324	---	1538.324	2015.204	4784.186	10.92442	25.93507	no
1,1,2-Trichloroethane	1817.898	989.4877	28.92292	581.7272	524.4285	28.92292	28.92292	28.92292	68.83655	0.156791	0.373163	no
Trichloroethylene	3938.778	2143.89	88.02628	1260.409	1136.262	88.02628	88.02628	88.02628	209.5026	0.47719	1.135713	no
Vinyl Chloride	---	---	150.0639	---	---	150.0639	150.0639	150.0639	357.152	0.813496	1.936121	no
ACID COMPOUNDS												
2-Chlorophenol	260.5653	141.8266	138.968	83.3809	75.16808	138.968	75.16808	98.47019	233.7727	0.533807	1.267282	no
2,4-Dichlorophenol	204.0085	111.0425	255.7276	65.28272	58.85253	255.7276	58.85253	77.09681	183.0314	0.417942	0.992213	no
BASE NEUTRAL COMPOUNDS												
Benzidine	252.4858	137.4288	0.000713	80.79545	72.83729	0.000713	0.000713	0.000713	0.001696	0.000004	0.000009	no
Hexachlorobenzene	---	---	0.001048	---	---	0.001048	0.001048	0.001048	0.002494	0.000006	0.000014	no
Hexachlorabutadiene	5.15071	1.121419	0.46109	1.648227	0.594352	0.46109	0.46109	0.46109	1.097394	0.0025	0.005949	no
PESTICIDES												
Aldrin	3.029829	---	0.001677	0.969545	---	0.001677	0.001677	0.001677	0.003991	0.000009	0.000022	no
Hexachlorocyclohexane (gamma BHC, Lindane)	5.352698	0.23088	0.838346	1.712863	0.122367	0.838346	0.122367	0.1603	0.38056	0.000869	0.002063	no
Chlordane	2.423863	0.004728	0.000796	0.775636	0.002506	0.000796	0.000796	0.000796	0.001895	0.000004	0.00001	no
4,4'-DDT	1.110937	0.001099	0.000796	0.3555	0.000583	0.000796	0.000583	0.000763	0.001812	0.000004	0.00001	no
4,4'-DDE	53.02201	11.54402	0.000796	16.96704	6.118332	0.000796	0.000796	0.000796	0.001895	0.000004	0.00001	no
4,4'-DDD	0.030298	0.006597	0.001132	0.009695	0.003496	0.001132	0.001132	0.001132	0.002694	0.000006	0.000015	no
Dieldrin	0.23976	0.061238	0.00021	0.076723	0.032456	0.00021	0.00021	0.00021	0.000499	0.000001	0.000003	no
Endosulfan	0.222187	0.061568	0.703636	0.0711	0.032631	0.703636	0.032631	0.042747	0.101483	0.000232	0.00055	no
Endrin	0.087259	0.041229	0.285852	0.027923	0.021851	0.285852	0.021851	0.028625	0.067957	0.000155	0.000368	no
Heptachlor	0.52517	0.004178	0.000293	0.168055	0.002214	0.000293	0.000293	0.000293	0.000698	0.000002	0.000004	no
Toxaphene	0.737258	0.00022	0.001006	0.235923	0.000117	0.001006	0.000117	0.000153	0.000362	8.3E-007	0.000002	no
Other Parameters:												
Fecal Col. (col/100ml)	---	---	---	---	---	---	---	---	---	---	---	no
Chlorine	19.18892	12.09374	---	6.140454	6.409681	---	6.140454	8.043995	19.09681	0.043606	0.103524	no
Ammonia	---	4397.723	---	---	2330.793	---	2330.793	3053.339	7248.767	16.55215	39.29557	no
Chlorides	---	---	---	---	---	---	---	---	---	---	---	no
Sulfates	---	---	---	---	---	---	---	---	---	---	---	no
TDS	---	1257518	---	---	666484.7	---	666484.7	873095	2072767	4733.048	11236.47	yes
	---	---	---	---	---	---	---	---	---	---	---	no
	---	---	---	---	---	---	---	---	---	---	---	no

APPENDIX A-2 LA0050695, AI No. 27823

Documentation and Explanation of Water Quality Screen
and Associated Lotus Spreadsheet

Each reference column is marked by a set of parentheses enclosing a number and asterisk, for example (*1) or (*19). These columns represent inputs, existing data sets, calculation points, and results for determining Water Quality Based Limits for an effluent of concern. The following represents a summary of information used in calculating the water quality screen:

Receiving Water Characteristics:

Receiving Water: Bayou LaButte
Critical Flow, Qrc (cfs): 0.1
Harmonic Mean Flow, Qrh (cfs): 3.21
Segment No.: 120201
Receiving Stream Hardness (mg/L): 348.00
Receiving Stream TSS (mg/L): 12.20
MZ Stream Factor, Fs: 1
Plume distance, Pf: N/A

Effluent Characteristics:

Company: Air Liquide Large Industries U.S. LP
Facility flow, Qe (MGD): 0.65
Effluent Hardness: N/A
Effluent TSS: N/A
Pipe/canal width, Pw: N/A
Permit Number: LA0050695

Variable Definition:

Qrc, critical flow of receiving stream, cfs
Qrh, harmonic mean flow of the receiving stream, cfs
Pf = Allowable plume distance in feet, specified in LAC 33.IX.1115.D
Pw = Pipe width or canal width in feet
Qe, total facility flow, MGD
Fs, stream factor from LAC.IX.33.11 (1 for harmonic mean flow)
Cu, ambient concentration, ug/L
Cr, numerical criteria from LAC.IX.1113, Table 1
WLA, wasteload allocation
LTA, long term average calculations
WQBL, effluent water quality based limit
ZID, Zone of Initial Dilution in % effluent
MZ, Mixing Zone in % effluent

Formulas used in aquatic life water quality screen (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 \times F_s + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Fs \times Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies (in the absence of a site specific dilution):

Discharge from a pipe:

Discharge from a canal:

Critical
 Dilution = $\frac{(2.8) P_w \pi^{1/2}}{Pf}$

Critical
 Dilution = $\frac{(2.38) (P_w^{1/2})}{(Pf)^{1/2}}$

$$WLA = \frac{(Cr-Cu) Pf}{(2.8) P_w \pi^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2}}{2.38 P_w^{1/2}}$$

Formulas used in human health water quality screen, human health non-carcinogens (dilution type WLA):

Streams:

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rc} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rc} \times 0.6463 \times Cu)}{Q_e}$$

Formulas used in human health water quality screen, human health carcinogens (dilution type WLA):

$$\text{Dilution Factor} = \frac{Q_e}{(Q_{rh} \times 0.6463 + Q_e)}$$

$$WLA_{a,c,h} = \frac{Cr}{\text{Dilution Factor}} - \frac{(Q_{rh} \times 0.6463 \times Cu)}{Q_e}$$

Static water bodies in the absence of a site specific dilution (human health carcinogens and human health non-carcinogens):

Discharge from a pipe:

Discharge from a canal:

Critical
 Dilution = $\frac{(2.8) P_w \pi^{1/2}}{Pf}$

Critical
 Dilution = $\frac{(2.38) (P_w^{1/2})}{(Pf)^{1/2}}$

$$WLA = \frac{(Cr-Cu) Pf^*}{(2.8) P_w \pi^{1/2}}$$

$$WLA = \frac{(Cr-Cu) P_f^{1/2*}}{2.38 P_w^{1/2}}$$

* Pf is set equal to the mixing zone distance specified in LAC 33:IX.1115 for the static water body type, i.e., lake, estuary, Gulf of Mexico, etc.

If a site specific dilution is used, WLA are calculated by subtracting Cu from Cr and dividing by the site specific dilution for human health and aquatic life criteria.

$$WLA = \frac{(Cr - Cu)}{\text{site specific dilution}}$$

Longterm Average Calculations:

$$LTAA = WLAa \times 0.32$$

$$LTAc = WLAc \times 0.53$$

$$LTAh = WLAh$$

WQBL Calculations:

Select most limiting LTA to calculate daily max and monthly avg WQBL

If aquatic life LTA is more limiting:

$$\text{Daily Maximum} = \text{Min}(LTAA, LTAc) \times 3.11$$

$$\text{Monthly Average} = \text{Min}(LTAc, LTAh) \times 1.31$$

If human health LTA is more limiting:

$$\text{Daily Maximum} = LTAh \times 2.38$$

$$\text{Monthly Average} = LTAh$$

Mass Balance Formulas:

$$\text{mass (lbs/day)} : (\text{ug/L}) \times 1/1000 \times (\text{flow, MGD}) \times 8.34 = \text{lbs/day}$$

$$\text{concentration(ug/L)} : \frac{\text{lbs/day}}{(\text{flow, MGD}) \times 8.34 \times 1/1000} = \text{ug/L}$$

The following is an explanation of the references in the spreadsheet.

- (*1) Parameter being screened.
- (*2) Instream concentration for the parameter being screened in ug/L. In the absence of accurate supporting data, the instream concentration is assumed to be zero (0).
- (*3) Monthly average effluent or technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*4) Daily maximum technology value in concentration units of ug/L or mass units of lbs/day. Units determined on a case-by-case basis as appropriate to the particular situation.
- (*5) Minimum analytical Quantification Levels (MQL's). Established in a letter dated January 27, 1994 from Wren Stenger of EPA Region 6 to Kilren Vidrine of LDEQ and from the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". The applicant must test for the parameter at a level at least as sensitive as the specified MQL. If this is not done, the MQL becomes the application value for screening purposes if the pollutant is suspected to be present

on-site and/or in the waste stream. Units are in ug/l or lbs/day depending on the units of the effluent data.

- (*6) States whether effluent data is based on 95th percentile estimation. A "1" indicates that a 95th percentile approximation is being used, a "0" indicates that no 95th percentile approximation is being used.
- (*7) 95th percentile approximation multiplier (2.13). The constant, 2.13, was established in memorandum of understanding dated October 8, 1991 from Jack Ferguson of Region 6 to Jesse Chang of LDEQ and included in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". This value is screened against effluent Water Quality Based Limits established in columns (*18) - (*21). Units are in ug/l or lbs/day depending on the units of the measured effluent data.
- (*8) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, acute criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness Dependent Criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(1.1280(\ln(\text{hardness})) - 1.6774)}$
Chromium III	$e^{(0.8190(\ln(\text{hardness})) + 3.6880)}$
Copper	$e^{(0.9422(\ln(\text{hardness})) - 1.3884)}$
Lead	$e^{(1.2730(\ln(\text{hardness})) - 1.4600)}$
Nickel	$e^{(0.8460(\ln(\text{hardness})) + 3.3612)}$
Zinc	$e^{(0.8473(\ln(\text{hardness})) + 0.8604)}$

Dissolved to Total Metal Multipliers for Freshwater Streams (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
Arsenic	$1 + 0.48 \times \text{TSS}^{-0.73} \times \text{TSS}$
Cadmium	$1 + 4.00 \times \text{TSS}^{-1.13} \times \text{TSS}$
Chromium III	$1 + 3.36 \times \text{TSS}^{-0.93} \times \text{TSS}$
Copper	$1 + 1.04 \times \text{TSS}^{-0.74} \times \text{TSS}$
Lead	$1 + 2.80 \times \text{TSS}^{-0.80} \times \text{TSS}$
Mercury	$1 + 2.90 \times \text{TSS}^{-1.14} \times \text{TSS}$
Nickel	$1 + 0.49 \times \text{TSS}^{-0.57} \times \text{TSS}$
Zinc	$1 + 1.25 \times \text{TSS}^{-0.70} \times \text{TSS}$

Dissolved to Total Metal Multipliers for Marine Environments (TSS dependent):

<u>Metal</u>	<u>Multiplier</u>
--------------	-------------------

Copper	$1 + (10^{4.86} \times \text{TSS}^{-0.72} \times \text{TSS}) \times 10^{-6}$
Lead	$1 + (10^{6.06} \times \text{TSS}^{-0.85} \times \text{TSS}) \times 10^{-6}$
Zinc	$1 + (10^{5.36} \times \text{TSS}^{-0.52} \times \text{TSS}) \times 10^{-6}$

If a metal does not have multiplier listed above, then the dissolved to total metal multiplier shall be 1.

- (*9) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, freshwater (FW) or marine water (MW) (whichever is applicable) aquatic life protection, chronic criteria. Units are specified. Some metals are hardness dependent. The hardness of the receiving stream shall generally be used, however a flow weighted hardness may be determined in site-specific situations. Dissolved metals are converted to Total metals using partition coefficients in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Similar to hardness, the TSS of the receiving stream shall generally be used, however, a flow weighted TSS may be determined in site-specific situations.

Hardness dependent criteria:

<u>Metal</u>	<u>Formula</u>
Cadmium	$e^{(0.7852 [\ln(\text{hardness})] - 3.4900)}$
Chromium III	$e^{(0.8473 [\ln(\text{hardness})] + 0.7614)}$
Copper	$e^{(0.8545 [\ln(\text{hardness})] - 1.3860)}$
Lead	$e^{(1.2730 [\ln(\text{hardness})] - 4.7050)}$
Nickel	$e^{(0.8460 [\ln(\text{hardness})] + 1.1645)}$
Zinc	$e^{(0.8473 [\ln(\text{hardness})] + 0.7614)}$

Dissolved to total metal multiplier formulas are the same as (*8), acute numerical criteria for aquatic life protection.

- (*10) LAC 33.IX.1113.C.6, Table 1, Numerical Criteria for Specific Toxic Substances, human health protection, drinking water supply (HHDW), non-drinking water supply criteria (HHNDW), or human health non-primary contact recreation (HHNPCR) (whichever is applicable). A DEQ and EPA approved Use Attainability Analysis is required before HHNPCR is used, e.g., Monte Sano Bayou. Units are specified.
- (*11) C if screened and carcinogenic. If a parameter is being screened and is carcinogenic a "C" will appear in this column.
- (*12) Wasteload Allocation for acute aquatic criteria (WLAA). Dilution type WLAA is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the acute aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAA formulas for streams:

$$\text{WLAA} = (\text{Cr}/\text{Dilution Factor}) - \frac{(\text{Fs} \times \text{Qrc} \times 0.6463 \times \text{Cu})}{\text{Qe}}$$

Dilution WLAA formulas for static water bodies:

$$\text{WLAA} = (\text{Cr}-\text{Cu})/\text{Dilution Factor}$$

Cr represents aquatic acute numerical criteria from column (*8).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*13) Wasteload Allocation for chronic aquatic criteria (WLAc). Dilution type WLAc is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the chronic aquatic numerical criteria for that parameter. Units are in ug/L.

Dilution WLAc formula:

$$WLAc = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAc formulas for static water bodies:

$$WLAc = (Cr-Cu)/Dilution\ Factor)$$

Cr represents aquatic chronic numerical criteria from column (*9).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*14) Wasteload Allocation for human health criteria (WLAh). Dilution type WLAh is calculated in accordance with the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards". Negative values indicate that the receiving water is not meeting the human health numerical criteria for that parameter. Units are in ug/L. Dilution

WLAh formula:

$$WLAh = (Cr/Dilution\ Factor) - \frac{(Fs \times Qrc, Orh \times 0.6463 \times Cu)}{Qe}$$

Dilution WLAh formulas for static water bodies:

$$WLAh = (Cr-Cu)/Dilution\ Factor)$$

Cr represents human health numerical criteria from column (*10).

If Cu data is unavailable or inadequate, assume Cu=0.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*15) Long Term Average for aquatic numerical criteria (LTAA). WLAA numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.32. WLAA X 0.32 = LTAA.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*16) Long Term Average for chronic numerical criteria (LTAc). WLAc numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 0.53. WLAc X 0.53 = LTAc.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*17) Long Term Average for human health numerical criteria (LTAh). WLAh numbers are multiplied by a multiplier specified in the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards" which is 1. WLAc X 1 = LTAh.

If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then a blank shall appear in this column.

- (*18) Limiting Acute, Chronic or Human Health LTA's. The most limiting LTA is placed in this column. Units are consistent with the WLA calculation. If standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then the type of limit, Aquatic or Human Health (HH), is indicated.
- (*19) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 1.31 to determine the average WQBL ($LTA_{\text{limiting aquatic}} \times 1.31 = WQBL_{\text{monthly average}}$). If human health criteria was the most limiting criteria then $LTA_h = WQBL_{\text{monthly average}}$. If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the chronic aquatic life criteria shall appear in this column depending on which is more limiting.
- (*20) End of pipe Water Quality Based Limit (WQBL) daily maximum in terms of concentration, ug/L. If aquatic life criteria was the most limiting LTA then the limiting LTA is multiplied by 3.11 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 3.11 = WQBL_{\text{daily max}}$). If human health criteria was the most limiting criteria then LTA_h is multiplied by 2.38 to determine the daily maximum WQBL ($LTA_{\text{limiting aquatic}} \times 2.38 = WQBL_{\text{daily max}}$). If water quality standards are being applied at end-of-pipe, such as in the case of certain TMDL's, then either the human health criteria or the acute aquatic life criteria shall appear in this column depending on which is more limiting.
- (*21) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. The mass limit is determined by using the mass balance equations above. $\text{Monthly average WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{monthly average WQBL, lbs/day}$.
- (*22) End of pipe Water Quality Based Limit (WQBL) monthly average in terms of mass, lbs/day. Mass limit is determined by using the mass balance equations above. $\text{Daily maximum WQBL, ug/l/1000} \times \text{facility flow, MGD} \times 8.34 = \text{daily maximum WQBL, lbs/day}$.
- (*23) Indicates whether the screened effluent value(s) need water quality based limits for the parameter of concern. A "yes" indicates that a water quality based limit is needed in the permit; a "no" indicates the reverse.

APPENDIX B



November 7, 2005

Louisiana Department of Environmental Quality
Office of Environmental Services
Permits Division
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
Attn: Mr. Scott Guilliams

Via E-mail: Scott.Guilliams@LA.GOV

Ref: Total Dissolved Solid Results from Ten-Month Sampling Event
LPDES Permit No. LA0050695
LDEQ AI No. 27823

Dear Mr. Guilliams:

As requested in the July 23, 2004 meeting, Air Liquide Large Industries U.S LP (Air Liquide) conducted a ten-month TDS sampling event at the Plaquemine Facility. The sampling event was conducted in order to determine plausible TDS limits at Outfall 001 based on the water quality concentrations of Air Liquide's Outfall 001 receiving stream, Bayou LaButte.

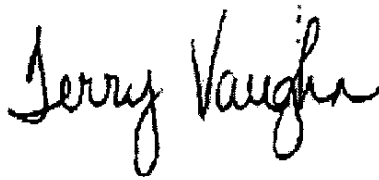
Upstream and downstream samples were collected from December to September. The distance from the mouth of Air Liquide's effluent tributary was greater than 100 feet for upstream and downstream locations.

Enclosed are the TDS results for the upstream location, the downstream location, and at Outfall 001 for the past ten months. In addition, also enclosed are proposed average and maximum TDS limits derived from the Water Quality Screen spreadsheet (see attached). Based on the "Permitting Guidance Document for Implementing Louisiana Surface Water Quality Standards Water Quality Management Plan Volume 3" default values were applied for critical flow and harmonic mean.

All sampling was performed by Quaternary Resource Investigations, L.L.C. (QRI) and analysis was completed by Sherry Laboratories of Lafayette, LA.

Air Liquide would like to request a meeting after the Louisiana Department of Environmental Quality has thoroughly reviewed the results. We thank you for allowing this interim in order to conduct this sampling event. If you have any questions or require additional information, please feel free to contact me at (713) 402-2397 or Kema L. LaCaze at (225) 292-1400.

Very truly yours,

A handwritten signature in black ink, reading "Terry Vaughn". The signature is written in a cursive, flowing style.

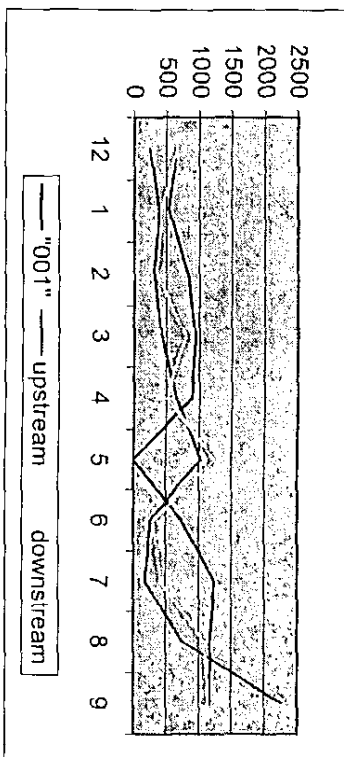
Terry Vaughn
Environmental Specialist, HSE Large Industries
Air Liquide Large Industries U.S. LP

KLL:TV

Enc: As stated

cc : Robyn Duhé – Air Liquide, Plaquemine Facility
Kema L. LaCaze – Quaternary Resource Investigations, L.L.C

	December	January	February	March	April	May	June	July	August	September
TDS Value at Outfall 001	646	539	822	938	882	NA	731	1239	1174	1165
Upstream Values	241	392	309	428	653	1030	264	186	748	2260
Downstream Values	665	427	358	794	511	1,240	307	426	1080	1160
Average TDS at Outfall 001										904
Maximum TDS at Outfall 001										1239
TDS	12	1	2	3	4	5	6	7	8	9



wqsmo4n.wk4
Developer: Bruce Fielding
Software: Lotus 4.0
Revision date: 12/13/02

Date: 12/15
Time: 01:20 PM

Appendix A-1
Water Quality Screen with
0

Water Quality Screen for Air Liquide

Input variables:

Receiving Water Characteristics:

Receiving Water Name= Air Liquide
Critical flow (Qr) cfs= 0.1
Harm. mean/avg tidal cfs= 1
Drinking Water=1 HHNPCR=2
Marine, 1=y, 0=n
Rec. Water Hardness= 348
Rec. Water TSS= 12.2
Fisch/Specific=1, Stream=0
Diffuser Ratio=

Effluent Characteristics:

Permittee= Air Liquide
Permit Number=
Facility flow (Qef), MGD= 0.65
Outfall Number = 001
Eff. data, 2=lbs/day
MQL, 2=lbs/day 1
Effluent Hardness=
Effluent TSS=
WQBL ind. 0=y, 1=n
Acute/Chr. ratio 0=n, 1=y 0
Aquatic, acute only 1=y, 0=n

Page Numbering/Labeling

Appendix Appendix A-1
Page Numbers 1=y, 0=n 1
Input Page # 1=y, 0=n 1

Fischer/Site Specific inputs:

Pipe=1, Canal=2, Specific=3
Pipe width, feet
ZID plume dist., feet
MZ plume dist., feet
HHnc plume dist., feet
HHc plume dist., feet

Fischer/site specific dilutions:

F/specific ZID Dilution = ---
F/specific MZ Dilution = ---
F/specific HHnc Dilution= ---
F/specific HHc Dilution= ---

Dilution:

ZID Fs = 0.1
MZ Fs = 1
Critical Qr (MGD)= 0.06463
Harm. Mean (MGD)= 0.6463
ZID Dilution = 0.990155
MZ Dilution = 0.909562
HHnc Dilution= 0.909562
HHc Dilution= 0.501427
ZID Upstream = 0.009943
MZ Upstream = 0.099431
MZhhnc Upstream= 0.099431

MZhhc Upstream= 0.994308
ZID Hardness= ---
MZ Hardness= ---
ZID TSS= ---
MZ TSS= ---
Multipliers:
WLAa --> LTAA 0.32
WLAc --> LTAc 0.53
LTA a,c-->WQBL avg 1.31
LTA a,c-->WQBL max 3.11
LTA h --> WQBL max 2.38
WQBL-limit/report 2.13
WLA Fraction 1
WQBL Fraction 1

Conversions:

ug/L-->lbs/day Qef0.005421
ug/L-->lbs/day Qeo 0
ug/L-->lbs/day Qr 0.000834
lbs/day-->ug/L Qeo184.4678
lbs/day-->ug/L Qef184.4678
diss-->tot 1=y0=n 1
Cu diss-->tot1=y0=n 1
cfs-->MGD 0.6463

Receiving Stream:

Default Hardness= 25
Default TSS= 10
99 Crit., 1=y, 0=n 1

P

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*2) CuEffluent Instream Conc. ug/L	(*3) Effluent /Tech (Avg) ug/L	(*4) Effluent /Tech (Max) ug/L	(*5) MQLEffluent 1=No 95% 0=95 % ug/L	(*6) 95th % estimat Non-Tech ug/L	(*7)
NONCONVENTIONAL						
Total Phenols (4AAP)				5		
3-Chlorophenol				10		
4-Chlorophenol				10		
2,3-Dichlorophenol				10		
2,5-Dichlorophenol				10		
2,6-Dichlorophenol				10		
3,4-Dichlorophenol				10		
2,4-Dichlorophenocy- acetic acid (2,4-D)				---		
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)				---		
METALS AND CYANIDE						
Total Arsenic				10		
Total Cadmium				1		
Chromium III				10		
Chromium VI				10		
Total Copper				10		
Total Lead				5		
Total Mercury				0.2		
Total Nickel				40		
Total Zinc				20		
Total Cyanide				20		
DIOXIN						
2,3,7,8 TCDD; dioxin				1.0E-005		
VOLATILE COMPOUNDS						
Benzene				10		
Bromoform				10		
Bromodichloromethane				10		
Carbon Tetrachloride				10		
Chloroform				10		
Dibromochloromethane				10		
1,2-Dichloroethane				10		
1,1-Dichloroethylene				10		
1,3-Dichloropropylene				10		
Ethylbenzene				10		
Methyl Chloride				50		
Methylene Chloride				20		
1,1,2,2-Tetrachloro- ethane				10		

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*12) WLAa Acute	(*13) WLAc Chronic	(*14) WLAh HHNDW	(*15) LTAA Acute	(*16) LTAc Chronic	(*17) LTAh HHNDW
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NONCONVENTIONAL						
Total Phenols (4AAP)	706.9602	384.8008	54.97154	226.2272	203.9444	54.97154
3-Chlorophenol	---	---	---	---	---	---
4-Chlorophenol	386.8082	211.0907	---	123.7786	111.8781	---
2,3-Dichlorophenol	---	---	---	---	---	---
2,5-Dichlorophenol	---	---	---	---	---	---
2,6-Dichlorophenol	---	---	---	---	---	---
3,4-Dichlorophenol	---	---	---	---	---	---
2,4-Dichlorophenocy- acetic acid (2,4-D)	---	---	---	---	---	---
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)	---	---	---	---	---	---
METALS AND CYANIDE						
Total Arsenic	666.8309	320.4458	---	213.3859	169.8363	---
Total Cadmium	481.8315	11.06428	---	154.1861	5.864069	---
Chromium III	7699.19	2718.836	---	2463.741	1440.983	---
Chromium VI	15.86823	11.63418	---	5.077832	6.166113	---
Total Copper	180.3433	117.322	---	57.70985	62.18068	---
Total Lead	1380.531	58.56412	---	441.77	31.03898	---
Total Mercury	5.329351	0.040149	---	1.705392	0.021279	---
Total Nickel	10003.12	1209.362	---	3200.997	640.9618	---
Total Zinc	1212.733	1205.533	---	388.0744	638.9323	---
Total Cyanide	46.35639	5.71704	14121.09	14.83404	3.030031	14121.09
DIOXIN						
2,3,7,8 TCDD; dioxin	---	---	0.000001	---	---	0.000001
VOLATILE COMPOUNDS						
Benzene	2271.362	1236.86	24.92885	726.8358	655.5356	24.92885
Bromoform	2959.133	1610.666	69.20248	946.9226	853.653	69.20248
Bromodichloromethane	---	---	6.581215	---	---	6.581215
Carbon Tetrachloride	2757.145	1500.723	2.393169	882.2863	795.3832	2.393169
Chloroform	2918.735	1588.677	139.6015	933.9954	841.9991	139.6015
Dibromochloromethane	---	---	10.13108	---	---	10.13108
1,2-Dichloroethane	11917.33	6486.642	13.56129	3813.545	3437.92	13.56129
1,1-Dichloroethylene	1171.534	637.6698	1.156698	374.8909	337.965	1.156698
1,3-Dichloropropylene	612.0255	333.1275	178.9763	195.8482	176.5576	178.9763
Ethylbenzene	3231.818	1759.089	8905.389	1034.182	932.3173	8905.389
Methyl Chloride	55546.87	30234.35	---	17775	16024.2	---
Methylene Chloride	19491.9	10609.51	173.5048	6237.408	5623.039	173.5048
1,1,2,2-Tetrachloro- ethane	941.2669	512.3347	3.589754	301.2054	271.5374	3.589754

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*2) CuEffluent Instream Conc. ug/L	(*3) Effluent /Tech (Avg) ug/L	(*4) Effluent /Tech (Max) ug/L	(*5) MQLEffluent 1=No 95% 0=95 % ug/L	(*6) 95th % estimat Non-Tech ug/L	(*7)
VOLATILE COMPOUNDS (cont'd)						
Tetrachloroethylene				10		
Toluene				10		
1,1,1-Trichloroethane				10		
1,1,2-Trichloroethane				10		
Trichloroethylene				10		
Vinyl Chloride				10		
ACID COMPOUNDS						
2-Chlorophenol				10		
2,4-Dichlorophenol				10		
BASE NEUTRAL COMPOUNDS						
Benzidine				50		
Hexachlorobenzene				10		
Hexachlorabutadiene				10		
PESTICIDES						
Aldrin				0.05		
Hexachlorocyclohexane (gamma BHC, Lindane)				0.05		
Chlordane				0.2		
4,4'-DDT				0.1		
4,4'-DDE				0.1		
4,4'-DDD				0.1		
Dieldrin				0.1		
Endosulfan				0.1		
Endrin				0.1		
Heptachlor				0.05		
Toxaphene				5		
Other Parameters:						
Fecal Col. (col/100ml)						
Chlorine						
Ammonia						
Chlorides						
Sulfates						
TDS		904000	1239000			1
Goldbook Values:						

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*12) WLAa Acute ug/L	(*13) WLAc Chronic ug/L	(*14) WLAh HHNDW ug/L	(*15) LTAA Acute ug/L	(*16) LTAc Chronic ug/L	(*17) LTAh HHNDW ug/L
Tetrachloroethylene	1302.827	709.1328	4.985769	416.9045	375.8404	4.985769
Toluene	1282.628	698.1385	50793.7	410.4409	370.0134	50793.7
1,1,1-Trichloroethane	5332.499	2902.497	---	1706.4	1538.324	---
1,1,2-Trichloroethane	1817.898	989.4877	13.76072	581.7272	524.4285	13.76072
Trichloroethylene	3938.778	2143.89	41.88046	1260.409	1136.262	41.88046
Vinyl Chloride	---	---	71.39622	---	---	71.39622
ACID COMPOUNDS						
2-Chlorophenol	260.5653	141.8266	138.968	83.3809	75.16808	138.968
2,4-Dichlorophenol	204.0085	111.0425	255.7276	65.28272	58.85253	255.7276
BASE NEUTRAL COMPOUNDS						
Benzidine	252.4858	137.4288	0.000339	80.79545	72.83729	0.000339
Hexachlorobenzene	---	---	0.000499	---	---	0.000499
Hexachlorabutadiene	5.15071	1.121419	0.219374	1.648227	0.594352	0.219374
PESTICIDES						
Aldrin	3.029829	---	0.000798	0.969545	---	0.000798
Hexachlorocyclohexane (gamma BHC, Lindane)	5.352698	0.23088	0.398862	1.712863	0.122367	0.398862
Chlordane	2.423863	0.004728	0.000379	0.775636	0.002506	0.000379
4,4'-DDT	1.110937	0.001099	0.000379	0.3555	0.000583	0.000379
4,4'-DDE	53.02201	11.54402	0.000379	16.96704	6.118332	0.000379
4,4'-DDD	0.030298	0.006597	0.000538	0.009695	0.003496	0.000538
Dieldrin	0.23976	0.061238	0.0001	0.076723	0.032456	0.0001
Endosulfan	0.222187	0.061568	0.703636	0.0711	0.032631	0.703636
Endrin	0.087259	0.041229	0.285852	0.027923	0.021851	0.285852
Heptachlor	0.52517	0.004178	0.00014	0.168055	0.002214	0.00014
Toxaphene	0.737258	0.00022	0.000479	0.235923	0.000117	0.000479
Other Parameters:						
Fecal Col.(col/100ml)	---	---	---	---	---	---
Chlorine	19.18892	12.09374	---	6.140454	6.409681	---
Ammonia	---	4397.723	---	---	2330.793	---
Chlorides	---	19943.08	19943.08	---	10569.83	19943.08
Sulfates	---	---	---	---	---	---
TDS	---	---	518520	---	---	518520
	---	---	---	---	---	---
	---	---	---	---	---	---



November 17, 2005

Louisiana Department of Environmental Quality
Office of Environmental Services
Permits Division
Post Office Box 4313
Baton Rouge, Louisiana 70821-4313
Attn: Ms. Jennifer Sheppard

Via E-mail: Jennifer.Sheppard@LA.GOV

Ref: Revised Water Quality Screen Spreadsheet
LPDES Permit No. LA0050695
LDEQ AI No. 27823

Dear Ms. Sheppard:

Air Liquide Large Industries U.S. LP (Air Liquide) has enclosed with this letter a revised Water Quality Screen (WQS) spreadsheet that was initially presented to the Louisiana Department of Environmental Quality (LDEQ) on November 7, 2005. In accordance with LAC 33:IX.1123, this revision is being submitted in order to allow for a set TDS value (300 mg/L) be applied in the facility's subsegment code, 120201. The WQS spreadsheet submitted beforehand allowed for the universal value of 260 mg/L to remain.

If you have any questions, please feel free to contact me at (713) 402-2397 or Kema L. LaCaze at (225) 292-1400.

Very truly yours,

Terry Vaughn
Environmental Specialist, HSE Large Industries
Air Liquide Large Industries U.S. LP

KLL:TV

Enc: As stated

C: Robyn Duhé – Air Liquide, Plaquemine Facility
Kema L. LaCaze – Quaternary Resource Investigations, L.L.C

wqsmodn.wk4 Date: 12/15 Appendix A-1
 Developer: Bruce Fielding Time: 01:21 PM Water Quality Screen with
 Software: Lotus 4.0 0
 Revision date: 12/13/02

Water Quality Screen for Air Liquide

Input variables:

Receiving Water Characteristics:

Receiving Water Name= Air Liquide
 Critical flow (Qr) cfs= 0.1
 Harm. mean/avg tidal cfs= 1
 Drinking Water=1 HHNPCR=2
 Marine, 1=y, 0=n
 Rec. Water Hardness= 348
 Rec. Water TSS= 12.2
 Fisch/Specific=1, Stream=0
 Diffuser Ratio=

Dilution:

ZID Fs = 0.1
 MZ Fs = 1
 Critical Qr (MGD)= 0.06463
 Harm. Mean (MGD)= 0.6463
 ZID Dilution = 0.990155
 MZ Dilution = 0.909562
 HHnc Dilution= 0.909562
 HHc Dilution= 0.501427
 ZID Upstream = 0.009943
 MZ Upstream = 0.099431
 MZhhnc Upstream= 0.099431

Effluent Characteristics:

Permittee= Air Liquide
 Permit Number=
 Facility flow (Qef), MGD= 0.65
 Outfall Number = 001
 Eff. data, 2=lbs/day
 MQL, 2=lbs/day 1
 Effluent Hardness=
 Effluent TSS=
 WQBL ind. 0=y, 1=n
 Acute/Chr. ratio 0=n, 1=y 0
 Aquatic, acute only 1=y, 0=n

MZhhc Upstream= 0.994308
 ZID Hardness= ---
 MZ Hardness= ---
 ZID TSS= ---
 MZ TSS= ---
 Multipliers:
 WLAa --> LTAA 0.32
 WLAc --> LTAc 0.53
 LTA a,c-->WQBL avg 1.31
 LTA a,c-->WQBL max 3.11
 LTA h --> WQBL max 2.38
 WQBL-limit/report 2.13
 WLA Fraction 1
 WQBL Fraction 1

Page Numbering/Labeling

Appendix Appendix A-1
 Page Numbers 1=y, 0=n 1
 Input Page # 1=y, 0=n 1

Fischer/Site Specific inputs:

Pipe=1, Canal=2, Specific=3
 Pipe width, feet
 ZID plume dist., feet
 MZ plume dist., feet
 HHnc plume dist., feet
 HHc plume dist., feet

Conversions:

ug/L-->lbs/day Qef0.005421
 ug/L-->lbs/day Qeo 0
 ug/L-->lbs/day Qr 0.000834
 lbs/day-->ug/L Qeo184.4678
 lbs/day-->ug/L Qef184.4678
 diss-->tot 1=y0=n 1
 Cu diss-->tot1=y0=n 1
 cfs-->MGD 0.6463

Fischer/site specific dilutions:

F/specific ZID Dilution = ---
 F/specific MZ Dilution = ---
 F/specific HHnc Dilution= ---
 F/specific HHc Dilution= ---

Receiving Stream:

Default Hardness= 25
 Default TSS= 10
 99 Crit., 1=y, 0=n 1

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*2) CuEffluent Instream Conc. ug/L	(*3) Effluent /Tech (Avg) ug/L	(*4) Effluent /Tech (Max) ug/L	(*5) MQLEffluent 1=No 95% 0=95 % ug/L	(*6) 95th % estimat Non-Tech ug/L	(*7)
NONCONVENTIONAL						
Total Phenols (4AAP)				5		
3-Chlorophenol				10		
4-Chlorophenol				10		
2,3-Dichlorophenol				10		
2,5-Dichlorophenol				10		
2,6-Dichlorophenol				10		
3,4-Dichlorophenol				10		
2,4-Dichlorophenocy- acetic acid (2,4-D)				---		
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)				---		
METALS AND CYANIDE						
Total Arsenic				10		
Total Cadmium				1		
Chromium III				10		
Chromium VI				10		
Total Copper				10		
Total Lead				5		
Total Mercury				0.2		
Total Nickel				40		
Total Zinc				20		
Total Cyanide				20		
DIOXIN						
2,3,7,8 TCDD; dioxin				1.0E-005		
VOLATILE COMPOUNDS						
Benzene				10		
Bromoform				10		
Bromodichloromethane				10		
Carbon Tetrachloride				10		
Chloroform				10		
Dibromochloromethane				10		
1,2-Dichloroethane				10		
1,1-Dichloroethylene				10		
1,3-Dichloropropylene				10		
Ethylbenzene				10		
Methyl Chloride				50		
Methylene Chloride				20		
1,1,2,2-Tetrachloro- ethane				10		

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*12) WLAa Acute	(*13) WLAc Chronic	(*14) WLAh HHNDW	(*15) LTAA Acute	(*16) LTAc Chronic	(*17) LTAh HHNDW
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
NONCONVENTIONAL						
Total Phenols (4AAP)	706.9602	384.8008	54.97154	226.2272	203.9444	54.97154
3-Chlorophenol	---	---	---	---	---	---
4-Chlorophenol	386.8082	211.0907	---	123.7786	111.8781	---
2,3-Dichlorophenol	---	---	---	---	---	---
2,5-Dichlorophenol	---	---	---	---	---	---
2,6-Dichlorophenol	---	---	---	---	---	---
3,4-Dichlorophenol	---	---	---	---	---	---
2,4-Dichlorophenoc- acetic acid (2,4-D)	---	---	---	---	---	---
2-(2,4,5-Trichlorophen- oxy) propionic acid (2,4,5-TP, Silvex)	---	---	---	---	---	---
METALS AND CYANIDE						
Total Arsenic	666.8309	320.4458	---	213.3859	169.8363	---
Total Cadmium	481.8315	11.06428	---	154.1861	5.864069	---
Chromium III	7699.19	2718.836	---	2463.741	1440.983	---
Chromium VI	15.86823	11.63418	---	5.077832	6.166113	---
Total Copper	180.3433	117.322	---	57.70985	62.18068	---
Total Lead	1380.531	58.56412	---	441.77	31.03898	---
Total Mercury	5.329351	0.040149	---	1.705392	0.021279	---
Total Nickel	10003.12	1209.362	---	3200.997	640.9618	---
Total Zinc	1212.733	1205.533	---	388.0744	638.9323	---
Total Cyanide	46.35639	5.71704	14121.09	14.83404	3.030031	14121.09
DIOXIN						
2,3,7,8 TCDD; dioxin	---	---	0.000001	---	---	0.000001
VOLATILE COMPOUNDS						
Benzene	2271.362	1236.86	24.92885	726.8358	655.5356	24.92885
Bromoform	2959.133	1610.666	69.20248	946.9226	853.653	69.20248
Bromodichloromethane	---	---	6.581215	---	---	6.581215
Carbon Tetrachloride	2757.145	1500.723	2.393169	882.2863	795.3832	2.393169
Chloroform	2918.735	1588.677	139.6015	933.9954	841.9991	139.6015
Dibromochloromethane	---	---	10.13108	---	---	10.13108
1,2-Dichloroethane	11917.33	6486.642	13.56129	3813.545	3437.92	13.56129
1,1-Dichloroethylene	1171.534	637.6698	1.156698	374.8909	337.965	1.156698
1,3-Dichloropropylene	612.0255	333.1275	178.9763	195.8482	176.5576	178.9763
Ethylbenzene	3231.818	1759.089	8905.389	1034.182	932.3173	8905.389
Methyl Chloride	55546.87	30234.35	---	17775	16024.2	---
Methylene Chloride	19491.9	10609.51	173.5048	6237.408	5623.039	173.5048
1,1,2,2-Tetrachloro- ethane	941.2669	512.3347	3.589754	301.2054	271.5374	3.589754

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*2) Instream Conc. ug/L	(*3) CuEffluent /Tech (Avg) ug/L	(*4) Effluent /Tech (Max) ug/L	(*5) MQLEffluent ug/L	(*6) 95th % 1=No 95% 0=95 %	(*7) estimat Non-Tech ug/L
VOLATILE COMPOUNDS (cont'd)						
Tetrachloroethylene				10		
Toluene				10		
1,1,1-Trichloroethane				10		
1,1,2-Trichloroethane				10		
Trichloroethylene				10		
Vinyl Chloride				10		
ACID COMPOUNDS						
2-Chlorophenol				10		
2,4-Dichlorophenol				10		
BASE NEUTRAL COMPOUNDS						
Benzidine				50		
Hexachlorobenzene				10		
Hexachlorabutadiene				10		
PESTICIDES						
Aldrin				0.05		
Hexachlorocyclohexane (gamma BHC, Lindane)				0.05		
Chlordane				0.2		
4,4'-DDT				0.1		
4,4'-DDE				0.1		
4,4'-DDD				0.1		
Diieldrin				0.1		
Endosulfan				0.1		
Endrin				0.1		
Heptachlor				0.05		
Toxaphene				5		
Other Parameters:						
Fecal Col. (col/100ml)						
Chlorine						
Ammonia						
Chlorides						
Sulfates						
TDS		904000	1239000			
Goldbook Values:						

Appendix A-1
Air Liquide
0

(*1) Toxic Parameters	(*12) WLAa Acute ug/L	(*13) WLAc Chronic ug/L	(*14) WLAh HHNDW ug/L	(*15) LTAA Acute ug/L	(*16) LTAc Chronic ug/L	(*17) LTAh HHNDW ug/L
Tetrachloroethylene	1302.827	709.1328	4.985769	416.9045	375.8404	4.985769
Toluene	1282.628	698.1385	50793.7	410.4409	370.0134	50793.7
1,1,1-Trichloroethane	5332.499	2902.497	---	1706.4	1538.324	---
1,1,2-Trichloroethane	1817.898	989.4877	13.76072	581.7272	524.4285	13.76072
Trichloroethylene	3938.778	2143.89	41.88046	1260.409	1136.262	41.88046
Vinyl Chloride	---	---	71.39622	---	---	71.39622
ACID COMPOUNDS						
2-Chlorophenol	260.5653	141.8266	138.968	83.3809	75.16808	138.968
2,4-Dichlorophenol	204.0085	111.0425	255.7276	65.28272	58.85253	255.7276
BASE NEUTRAL COMPOUNDS						
Benzidine	252.4858	137.4288	0.000339	80.79545	72.83729	0.000339
Hexachlorobenzene	---	---	0.000499	---	---	0.000499
Hexachlorobutadiene	5.15071	1.121419	0.219374	1.648227	0.594352	0.219374
PESTICIDES						
Aldrin	3.029829	---	0.000798	0.969545	---	0.000798
Hexachlorocyclohexane (gamma BHC, Lindane)	5.352698	0.23088	0.398862	1.712863	0.122367	0.398862
Chlordane	2.423863	0.004728	0.000379	0.775636	0.002506	0.000379
4,4'-DDT	1.110937	0.001099	0.000379	0.3555	0.000583	0.000379
4,4'-DDE	53.02201	11.54402	0.000379	16.96704	6.118332	0.000379
4,4'-DDD	0.030298	0.006597	0.000538	0.009695	0.003496	0.000538
Dieldrin	0.23976	0.061238	0.0001	0.076723	0.032456	0.0001
Endosulfan	0.222187	0.061568	0.703636	0.0711	0.032631	0.703636
Endrin	0.087259	0.041229	0.285852	0.027923	0.021851	0.285852
Heptachlor	0.52517	0.004178	0.00014	0.168055	0.002214	0.00014
Toxaphene	0.737258	0.00022	0.000479	0.235923	0.000117	0.000479
Other Parameters:						
Fecal Col. (col/100ml)	---	---	---	---	---	---
Chlorine	19.18892	12.09374	---	6.140454	6.409681	---
Ammonia	---	4397.723	---	---	2330.793	---
Chlorides	---	19943.08	19943.08	---	10569.83	19943.08
Sulfates	---	---	---	---	---	---
TDS	---	---	598292.3	---	---	598292.3
	---	---	---	---	---	---
	---	---	---	---	---	---

CURTIS ENVIRONMENTAL SERVICES, INC.

WATER / WASTEWATER TESTING - CONSULTING - OPERATION - BIOASSAY
 185 BELLE TERRE BLVD. 71351 POITTEVENT ST. DEQ LAB CERT.#01984
 STE. D ABITA SPRINGS, LA 70420 DHH CERT. # LA05001
 P. O. BOX 485 PHONE # 985-892-3567 OPERATION CERT. #14-427
 LAPLACE, LA 70068
 PHONE # 985-653-0000
 FAX # 985-653-0001

CLIENT: AIR LIQUIDE LPDES PERMIT #LA0050695
 57805 EVERGREEN ROAD REPORT DATE: 12/5/2005
 PLAQUEMINE, LA 70764

PRELIMINARY REPORT

FACILITY: PLAQ. Facility-001 Combined Outfall
 APPROVED BY:

Ginger Curila, Executive Assistant

All CES Sampling Analyses Adhere To EPA Protocol, Any Questions, Please Contact CES AT 888-653-0000.

Lab Ref AB48374 Collection Date: 12/1/2005 Sample Collector: PJ
 Chain # 62419-03 Collection Time: 1:00:00 PM Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
TOTAL DISSOLVED SOLIDS	mg/l	1196	1.0	CD	12/5/2005	1:30:00 PM	SM18-2540C

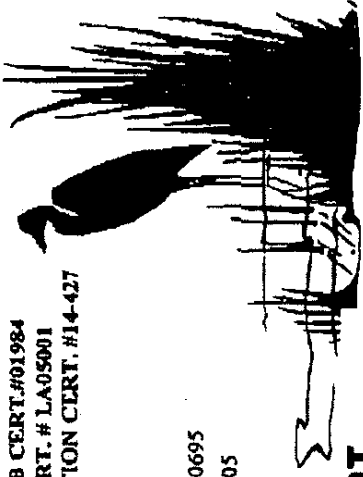
CURTIS ENVIRONMENTAL SERVICES, INC.

WATER / WASTEWATER TESTING - CONSULTING - OPERATION - BIOASSAY
 185 BELLE TERRE BLVD. 71351 POITTEVENT ST. DEQ LAB CERT.#01984
 STE. D ABITA SPRINGS, LA 70420 DHH CERT. # LA05001
 P. O. BOX 485 PHONE # 985-892-3567 OPERATION CERT. #14-427
 LAPLACE, LA 70068

PHONE # 985-653-0000
 FAX # 985-653-0001

CLIENT: AIR LIQUIDE
 57805 EVERGREEN ROAD
 PLAQUEMINE, LA 70764

LPDES PERMIT # LA0050695
 REPORT DATE: 12/5/2005



PRELIMINARY REPORT

FACILITY: PLAQ. FAC. - 101 Process Condensate
 APPROVED BY:

Ginger Curtis, Executive Assistant

All CES Sampling Analyses Adhere To EPA Protocol. Any Questions, Please Contact CES AT 985-653-0000.

Lab Ref AB48373
 Chain # 62419-01

Collection Date: 12/1/2005
 Collection Time: 12:38:00 PM

Sample Collector: PJ
 Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
TOTAL DISSOLVED SOLIDS	mg/l	1307	1.0	CD	12/5/2005	1:30:00 PM	SM18-2540C

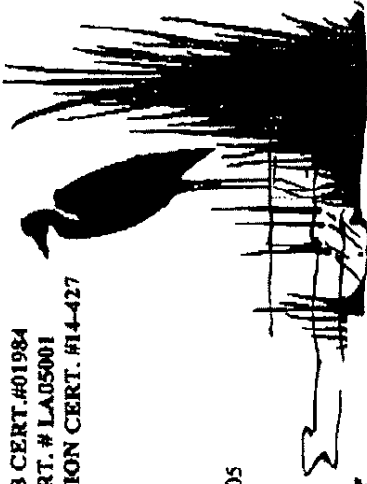
CUTIS ENVIRONMENTAL SERVICES, INC.

WATER / WASTEWATER TESTING - CONSULTING - OPERATION - BIOASSAY

185 BELLE TERRE BLVD.
SITE D
P. O. BOX 485
LAFACE, LA 70068
PHONE # 985-653-0000
FAX # 985-653-0001

71351 POITEVENT ST.
ABITA SPRINGS, LA 70420
PHONE # 985-892-3567

DEQ LAB CERT. #01984
DHH CERT. # LA05001
OPERATION CERT. #14-427



CLIENT AIR LIQUIDE
57805 EVERGREEN ROAD
PLAQUEMINE, LA 70764

LPDES PERMIT #
REPORT DATE: 12/5/2005

FACILITY PLAQ. Facility Make up Well Water
APPRO BY:

PRELIMINARY REPORT

Ginger Curila, Executive Assistant

All CES Sampling Analyses Adhere To EPA Protocol, Any Questions, Please Contact CES AT 985-653-0000.

Ref AB48372	Collection Date: 12/1/2005	Sample Collector: PJ					
in # 62419-03	Collection Time: 12:30:00 PM	Comment:					
Anal	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
	mg/l	464	1.0	CD	12/5/2005	1:30:00 PM	SM18-2540C
TOTAL DISSOLVED SOLIDS							

CURTIS ENVIRONMENTAL SERVICES, INC.

WATER / WASTEWATER TESTING - CONSULTING - OPERATION - BIOASSAY
 185 BELLE TERRE BLVD. 71351 POITEVENT ST. DEQ LAB CERT. #01984
 STE. D ABITA SPRINGS, LA 70420 DHH CERT. # LA05001
 P. O. BOX 485 PHONE # 985-892-3567 OPERATION CERT. #14-427
 LAPLACE, LA 70068

PHONE # 985-653-0000
 FAX # 985-653-0001

CLIENT: AIR LIQUIDE
 57805 EVERGREEN ROAD
 PLAQUEMINE, LA 70764

LPDES PERMIT # LA0050693
 REPORT DATE: 1/27/2006

FACILITY: PLAQ. FAC. - 101 Process Condensate
 APPROVED BY:

Ginger Curtis, Executive Assistant

All CES Sampling Analyses Adhere To EPA Protocol, Any Questions, Please Contact CES AT 985-653-0000.

Lab Ref AB50398	Collection Date: 1/5/2006	Sample Collector: PJ
Chain # 62371-01	Collection Time: 11:00:00 AM	Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
OIL AND GREASE	mg/l	PENDING			1/1/1981	12:00:00 AM	SM18-5520B
TOTAL ORGANIC CARBON	mg/l	PENDING			1/1/1981	12:00:00 AM	SM18-5310B
PH-HYDROGEN ION CONTENT	su	PENDING			1/1/1981	12:00:00 AM	SM18-4500HB
SYSTEM FLOW RATE	MGD	PENDING			1/1/1981	12:00:00 AM	

Lab Ref AB50588	Collection Date: 1/10/2006	Sample Collector: DF
Chain # 63218	Collection Time: 12:05:00 PM	Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
HARDNESS(as CaCO3)	mg/l	740	1.0	DH	1/11/2006	10:00:00 AM	SM19-2340C
TOTAL SUSPENDED SOLIDS	mg/l	4	1.0	LS	1/11/2006	9:00:00 AM	SM18-2540D
TOTAL DISSOLVED SOLIDS	mg/l	1402	1.0	DH	1/11/2006	10:15:00 AM	SM18-2540C

IPAL101

Page 1 of 3

Lab Ref: AB5087 Chain # 62316-01 Cation Date: 1/16/2006 Cation Time: 2:00:00 PM Sample Collector: PJ Comment: special sample as of robin

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
HARDNESS(as CaCO3)	mg/l	720	1.0	DH	1/17/2006	1:00:00 PM	SM19-2340C
TOTAL DISSOLVED SOLIDS	mg/l	1357	1.0	DH	1/17/2006	1:15:00 PM	SM18-2540C
TOTAL SUSPENDED SOLIDS	mg/l	7	1.0	LS	1/18/2006	7:35:00 AM	SM18-2540D

Lab Ref: AB5094 Chain # 63368-04 Cation Date: 1/17/2006 Cation Time: 1:10:00 PM Sample Collector: PJ Comment: PLANT EFF.

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
HARDNESS(as CaCO3)	mg/l	560	1.0	DH	1/17/2006	9:05:00 AM	SM19-2340C
TOTAL DISSOLVED SOLIDS	mg/l	1274	1.0	DH	1/18/2006	10:00:00 AM	SM18-2540C
TOTAL SUSPENDED SOLIDS	mg/l	12	1.0	LS	1/18/2006	7:45:00 AM	SM18-2540D

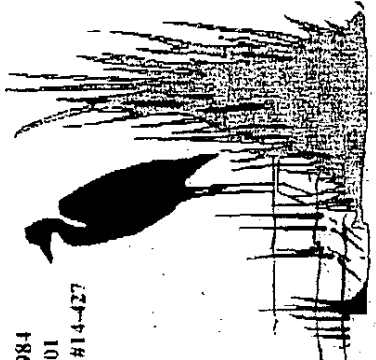
CURTIS ENVIRONMENTAL SERVICES, INC.

WATER / WASTEWATER TESTING - CONSULTING - OPERATION - BIOASSAY
 185 BELLE TERRE BLVD.
 STE. D
 P.O. BOX 485
 LAPLACE, LA 70068
 PHONE # 985-653-0000
 FAX # 985-653-0001

71351 POITTEVENT ST.
 ABITA SPRINGS, LA 70420
 PHONE # 985-892-3567
 DEQ LAB CERT. #01984
 DHH CERT. # LA05001
 OPERATION CERT. #14-427

CLIENT: AIR LIQUIDE
 57805 EVERGREEN ROAD
 PLAQUEMINE, LA 70664

LPDES PERMIT # LA0050695
 REPORT DATE: 1/27/2006



FACILITY: PLAQ. Facility-001 Combined Outfall
 APPROVED BY: Ginger Curtis, Executive Assistant

PRELIMINARY REPORT

All CES Sampling Analyses Adhere To EPA Protocol. Any Questions, Please Contact CES AT 985-653-0000.

Lab Ref AB50399 Collection Date: 1/5/2006 Sample Collector: PJ
 Chain # 62371-04 Collection Time: 11:00:00 AM Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
OIL AND GREASE	mg/l	PENDING			1/1/1981	12:00:00 AM	SM18-3520B
TOTAL ORGANIC CARBON	mg/l	PENDING			1/1/1981	12:00:00 AM	SM18-5310B
PH-HYDROGEN ION CONTENT	su	PENDING			1/1/1981	12:00:00 AM	SM18-4500HB
SYSTEM FLOW RATE	MGD	PENDING			1/1/1981	12:00:00 AM	

Lab Ref AB50589 Collection Date: 1/10/2006 Sample Collector: DF
 Chain # 63218 Collection Time: 11:50:00 AM Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method Reference
HARDNESS(as CaCO3)	mg/l	560	1.0	DH	1/11/2006	10:00:00 AM	SM19-2340C
TOTAL SUSPENDED SOLIDS	mg/l	11	1.0	LS	1/11/2006	9:00:00 AM	SM18-2540D
TOTAL DISSOLVED SOLIDS	mg/l	1135	1.0	DH	1/11/2006	10:15:00 AM	SM18-2540C

Lab Ref AB50888 Collection Date: 1/16/2006 Sample Collector: PJ
 Chain # 62316-03 Collection Time: 2:22:00 PM Comment: special sample as per robin

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method
HARDNESS(as CaCO3)	mg/l	550	1.0	DH	1/17/2006	1:00:00 PM	SN
TOTAL SUSPENDED SOLIDS	mg/l	8	1.0	LS	1/18/2006	7:35:00 AM	SN
TOTAL DISSOLVED SOLIDS	mg/l	1154	1.0	DH	1/17/2006	1:15:00 PM	SN

Lab Ref AB50942 Collection Date: 1/17/2006 Sample Collector: PJ
 Chain # 63368-01 Collection Time: 1:05:00 PM Comment: COMBINED

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method
HARDNESS(as CaCO3)	mg/l	630	1.0	DH	1/17/2006	9:05:00 AM	SN
TOTAL SUSPENDED SOLIDS	mg/l	5	1.0	LS	1/18/2006	7:45:00 AM	SN
TOTAL DISSOLVED SOLIDS	mg/l	1078	1.0	DH	1/18/2006	10:00:00 AM	SN

Lab Ref AB51504 Collection Date: 1/26/2006 Sample Collector: PJ
 Chain # 62188-01 Collection Time: 1:00:00 PM Comment:

Analysis	Units	Results	MDL	Tech	Start Date	Start Time	Method
TOTAL DISSOLVED SOLIDS	mg/l	PENDING			1/1/1981	12:00:00 AM	SN

APPENDIX C

OUTFALL NO.: 101		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lbs/day)	
POLLUTANT	MOQ* (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
VOLATILE ORGANIC CHEMICALS - EPA Method 624 suggested					Used 1 yr avg flow of: 4399
acrolein	50		<0.050		<0.19
acrylonitrile	50		<0.050		<0.19
benzene	10		<0.005		<0.02
bromoform	10		<0.005		<0.02
carbon tetrachloride	10		<0.005		<0.02
chlorobenzene	50		<0.005		<0.02
chlorodibromomethane	10		<0.005		<0.02
chloroethane	10		<0.005		<0.02
2-chloroethylvinyl ether	50		<0.010		<0.04
chloroform	10		<0.005		<0.02
dichlorobromomethane	10		<0.005		<0.02
1,1-dichloroethane	10		<0.005		<0.02
1,2-dichloroethane	10		<0.005		<0.02
1,1-dichloroethylene	10		<0.005		<0.02
1,2-dichloropropane	10		<0.005		<0.02
1,3-Dichloropropylene	10		<0.005		<0.02
ethylbenzene	10		<0.005		<0.02
methyl bromide	50		<0.005		<0.02
methyl chloride	50		<0.005		<0.02
methylene chloride	20		<0.005		<0.02
1,1,2,2-tetrachloroethane	10		<0.005		<0.02
tetrachloroethylene	10		<0.005		<0.02
toluene	10		<0.005		<0.02
1,2-trans-dichloroethylene	10		<0.005		<0.02
1,1,1-trichloroethane	10		<0.005		<0.02

OUTFALL NO.: 101		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lbs/day)	
POLLUTANT	MQL* (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
1,1,2-trichloroethane	10		<0.005		<0.02
trichloroethene (trichloroethylene)	10		<0.005		<0.02
vinyl chloride (chloroethylene)	10		<0.010		<0.04
ACID EXTRACTABLE ORGANIC CHEMICALS - EPA Method 625 suggested					Used 1-yr. avg. flow of 4399
2-chlorophenol	10		<0.010		<0.04
3-chlorophenol	10		<0.010		<0.04
4-chlorophenol	10		<0.010		<0.04
2,3-dichlorophenol	10		<0.010		<0.04
2,4-dichlorophenol	10		<0.010		<0.04
2,5-dichlorophenol	10		<0.010		<0.04
2,6-dichlorophenol	10		<0.010		<0.04
3,4-dichlorophenol	10		<0.010		<0.04
2,4-dimethylphenol	10		<0.010		<0.04
2,4-dinitrophenol	50		<0.050		<0.18
2-methyl 4,6-dinitrophenol (4,6-dinitro-o-cresol)	50		<0.020		<0.07
2-nitrophenol	20		<0.010		<0.04
4-nitrophenol	50		<0.020		<0.07
4-chloro-3-methylphenol (p-chloro-m-cresol)	10		<0.020		<0.07
pentachlorophenol	50		<0.050		<0.18
phenol	10		<0.010		<0.04
2,4,6-trichlorophenol	10		<0.010		<0.04

OUTFALL NO.: 101		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lb/day)	
POLLUTANT	MOI (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
BASE/NEUTRAL/EXTRACTABLE ORGANIC CHEMICALS - EPA Method 625 suggested					Used 1-yr avg. Flow of 4399
acenaphthene	10		<0.010		<0.04
acenaphthylene	10		<0.010		<0.04
anthracene	10		<0.010		<0.04
benzidine	50		<0.010		<0.04
benzo(a)anthracene	10		<0.010		<0.04
benzo(a)pyrene	10		<0.010		<0.04
3,4-benzo fluoranthene	10		<0.010		<0.04
benzo(ghi)perylene	20		<0.010		<0.04
benzo(k)fluoranthene	10		<0.010		<0.04
bis(2-chloroethoxy)methane	10		<0.010		<0.04
bis(2-chloroethyl)ether	10		<0.010		<0.04
bis(2-chloroisopropyl)ether	10		<0.010		<0.04
bis(2-ethylhexyl)phthalate	0.0055		0.005		0.02
4-bromophenyl phenyl ether	10		<0.010		<0.04
butylbenzyl phthalate	10		<0.010		<0.04
2-chloronaphthalene	10		<0.010		<0.04
4-chlorophenyl phenyl ether	10		<0.010		<0.04
chrysene	10		<0.010		<0.04
dibenzo(a,h)anthracene	20		<0.010		<0.04
1,2-dichlorobenzene	10		<0.010		<0.04
1,3-dichlorobenzene	10		<0.010		<0.04
1,4-dichlorobenzene	10		<0.010		<0.04
3,3'-dichlorobenzidine	50		<0.020		<0.07
diethyl phthalate	10		<0.010		<0.04
di-n-butyl phthalate					

OUTFALL NO.: 101		EFFLUENT			
		CONCENTRATION		MASS	
		(ppm)		(lbs/day)	
POLLUTANT	MCL ¹ (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
	10		<0.010		<0.04
2,4-dinitrotoluene	10		<0.010		<0.04
2,6-dinitrotoluene	10		<0.010		<0.04
di-n-octyl phthalate	10		<0.010		<0.04
1,2-diphenylhydrazine (as azobenzene)	20		<0.010		<0.04
fluoranthene	10		<0.010		<0.04
fluorene	10		<0.010		<0.04
hexachlorobenzene	10		<0.010		<0.04
hexachlorobutadiene	10		<0.010		<0.04
hexachlorocyclopentadiene	10		<0.010		<0.04
hexachloroethane	20		<0.010		<0.04
indeno(1,2,3-cd)pyrene	20		<0.010		<0.04
isophorone	10		<0.010		<0.04
naphthalene	10		<0.010		<0.04
nitrobenzene	10		<0.010		<0.04
N-nitrosodimethylamine	50		<0.010		<0.04
N-nitrosodi-n-propylamine	20		<0.010		<0.04
N-nitrosodiphenylamine	20		<0.010		<0.04
phenanthrene	10		<0.010		<0.04
pyrene	10		<0.010		<0.04
1,2,4-trichlorobenzene	10		<0.010		<0.04

OUTFALL NO.: 101		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lbs/day)	
POLLUTANT	MQL (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
PESTICIDES & PCB'S - EPA Method 608 required					Used 1-yr. avg. flow of 4399
aldrin	0.05		<0.00005		<0.0002
Aroclor 1016 (PCB-1016)	1.0		<0.010		<0.04
Aroclor 1221 (PCB-1221)	1.0		<0.010		<0.04
Aroclor 1232 (PCB-1232)	1.0		<0.010		<0.04
Aroclor 1242 (PCB-1242)	1.0		<0.010		<0.04
Aroclor 1248 (PCB-1248)	1.0		<0.010		<0.04
Aroclor 1254 (PCB-1254)	1.0		<0.010		<0.04
Aroclor 1260 (PCB-1260)	1.0		<0.010		<0.04
alpha-BHC	0.05		<0.00005		<0.0002
beta-BHC	0.05		<0.00005		<0.0002
delta-BHC	0.05		<0.00005		<0.0002
gamma-BHC	0.05		<0.00005		<0.0002
chlordane	0.2		<0.0002		<0.0007
4,4'DDT	0.1		<0.0001		<0.0004
4,4'DDE	0.1		<0.0001		<0.0004
4,4'DDD	0.1		<0.0001		<0.0004
dieldrin	0.1		<0.00005		<0.0002
alpha-endosulfan	0.1		<0.00005		<0.0002
beta-endosulfan	0.1		<0.00005		<0.0002
endosulfan sulfate	0.1		<0.0001		<0.0004
endrin	0.1		<0.00005		<0.0002
endrin aldehyde	0.1		<0.0001		<0.0004
heptachlor	0.05		<0.00005		<0.0002
heptachlor epoxide	0.05		<0.00005		<0.0002

OUTFALL NO.: 101		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lbs/day)	
POLLUTANT	MQL* (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
toxaphene	5.0		<0.0002		<0.0007
2,4-dichlorophenocetic acid (2,4-D)	---				
2-(2,4,5-trichlorophenoxy) propionic acid	---				
2,3,7,8-tetrachlorodibenzo-p-dioxin - use EPA Method 1613	10 ppq		<0.01		<.04

OUTFALL NO.:		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lbs/day)	
POLLUTANT	MQL (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
METALS, CYANIDE, AND TOTAL PHENOLS - use EPA Approved Method					
Antimony, Total	60		<0.010		<0.04
Arsenic, Total	0.033		0.010		0.04
Beryllium, Total	5		<0.005		<0.02
Cadmium, Total	1		<0.001		<0.004
Chromium, Total	10		<0.050		<0.19
Chromium, Hexavalent	10		<0.010		<0.04
Copper, Total	0.070		0.010		0.04
Lead, Total	5		<0.004		<0.01
Mercury, Total	0.2		<0.020		<0.07
Nickel, Total [Marine]	5		<0.010		<0.04
Nickel, Total [Freshwater]	40		<0.010		<0.04
Selenium, Total	5		<0.010		<0.04
Silver, Total	2		<0.005		<0.02
Thallium, Total	10		<0.010		<0.04
Zinc, Total	0.10		0.030		0.11
Cyanide, Total	20		<0.020		<0.07
Cyanide, Free	--				
Phenols, Total	5		<0.010		<0.04

OUTFALL NO.:		EFFLUENT			
		CONCENTRATION (ppm)		MASS (lbs/day)	
POLLUTANT	MQL* (ug/l)	Monthly Average	Daily Maximum	Monthly Average	Daily Maximum
ADDITIONAL METALS, IF EXPECTED TO BE PRESENT: Use EPA Approved Method					
Aluminum, Total	--				
Barium, Total	--				
Boron, Total	--				
Cobalt, Total	--				
Iron, Total	--				
Iron, Dissolved	--				
Magnesium, Total	--				
Manganese, Total	--				
Molybdenum	--				
Tin, Total	--				
Titanium, Total	--				

* Minimum Quantification Level (MQL).

NA – Not Expected